

***United States Court of Appeals  
for the  
District of Columbia Circuit***



**TRANSCRIPT OF  
RECORD**





968

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IN THE  
UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 23,813

ENVIRONMENTAL DEFENSE FUND, INCORPORATED; SIERRA CLUB;  
WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL; NATIONAL  
AUDUBON SOCIETY, and IZAAK WALTON LEAGUE OF AMERICA,  
*Petitioners.*

v.

CLIFFORD M. HARDIN, Secretary of Agriculture,  
and UNITED STATES DEPARTMENT OF AGRICULTURE,  
*Respondents.*

Petition for Review of Order of the  
United States Department of Agriculture

BRIEF FOR PETITIONERS AND APPENDIX

JAMES W. MOORMAN  
CHARLES R. HALPERN  
2008 Hillyer Place, N. W.  
Washington, D. C. 20009

*Attorneys for*

United States Court of Appeals  
for the District of Columbia Circuit

Environmental Defense Fund, Incorporated; Sierra Club; West Michigan  
Environmental Action Council; National Audubon Society, and Izaak  
Walton League of America

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EDWARD BERLIN  
Berlin, Roisman and Kessler  
1910 N Street, N. W.  
Washington, D. C. 20036

*Attorney for*

Environmental Defense Fund, Incorporated



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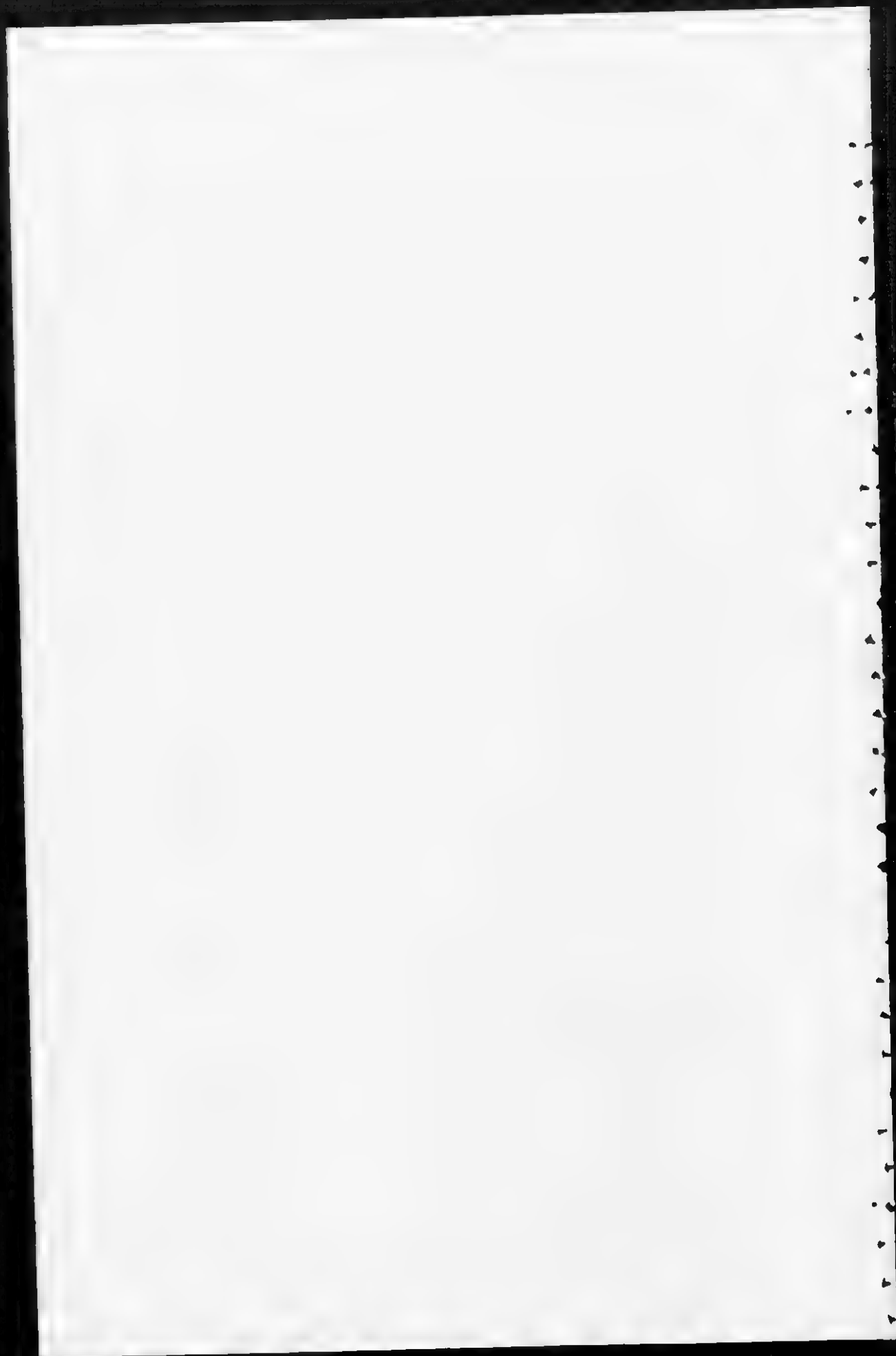
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Petition for Review of Order of the  
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**BRIEF FOR PETITIONERS**

**JURISDICTION**

The jurisdiction of this Court rests on Section 4d of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, 7 U.S.C. § 135b(d), 61 Stat. 168, as amended by 78 Stat. 190.

**ISSUES PRESENTED FOR REVIEW**

1. Whether Respondents have erred in denying Petitioners' request that they issue notices under Section 4c of the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. § 135b(c), to commence administrative proceedings by which the registrations of all economic poisons containing DDT could be cancelled, where (a) the Respondents have found that widespread DDT use should be discontin-

ued, and (b) the evidence before the Respondents compels such a finding.

2. Whether Respondents have erred in denying Petitioners' request that they suspend DDT registrations immediately for the duration of Section 4c cancellation proceedings where the evidence before Respondents is that DDT is an imminent hazard to the public.

3. Whether the Petitioners have standing to obtain review.

4. Whether there is a reviewable order before the Court.

### PREVIOUS CONSIDERATION BY THIS COURT

This cause was previously before a panel including Chief Judge Bazelon and Judge Robinson on Respondents' Motion To Dismiss and Respondents' Motion for Reconsideration of Order Deferring Ruling on Motion To Dismiss. An order was entered on January 29, 1970, deferring consideration of the Motion To Dismiss. A related cause, *Environmental Defense Fund, Inc. v. Finch*, No. 23812, involving many of the same factual issues, is also before this Court for consideration at this time.

### REFERENCES TO RULINGS

The Order of December 11, 1969, of the Respondents, including four attachments, is set forth at pp. 36-45 of the Appendix hereto.

### STATUTES AND REGULATIONS INVOLVED

Sections 2-4 of the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 135-135b, 61 Stat. 168, as amended by 78 Stat. 190, is attached as an addendum to this brief.

## STATEMENT OF THE CASE

*The Parties.* The Petitioners are five groups actively engaged in environmental protection. Their activities include a long-term involvement in efforts to control the environmental pollution caused by DDT and other persistent pesticides. They have participated in proceedings in a variety of jurisdictions to limit the use of DDT.

The Environmental Defense Fund is made up of scientists and other citizens dedicated to the protection of the environment on behalf of the public, employing legal action where necessary. It has participated in hearings on DDT in various jurisdictions. Its Scientists Advisory Committee, with more than 200 members, including some of the world's foremost environmental scientists, assures that positions taken are thoroughly supported by scientific evidence. (App. 1-2). The Sierra Club, which has a membership of 80,000, is devoted to the preservation of scenic resources, forests, waters, wildlife and wilderness. The Sierra Club has participated in several citizens' campaigns and legal actions to preserve the environment and has become well known for these efforts. (App. 2). The National Audubon Society, which has 80,000 members, is devoted to the protection of wildlife and the natural environment. An example of Audubon's many activities is the ownership and operation of 40 wildlife refuges. (App. 2-3). The West Michigan Environmental Action Council has a membership of 25 civic organizations and 300 individual members, and is devoted to protecting and restoring the quality of the environment. (App. 3) The Izaak Walton League has a nationwide membership of 50,000. The League has long had a special interest in and an active program to protect aquatic habitats. Because of its concern with the effects of DDT on aquatic organisms, it has participated in state and local proceedings to curb the use of DDT. (Motion To Intervene of Izaak Walton League.)

The Respondents (hereinafter sometimes called "Agriculture") have primary responsibility for the regulation of

pesticides in the public interest. The Secretary of Agriculture has delegated responsibility for the regulation of pesticides to the Pesticides Regulation Division, a branch of the Agriculture Research Service. No pesticides may be sold in interstate commerce unless they are registered with Respondents pursuant to the terms of the Federal Insecticide, Fungicide and Rodenticide Act<sup>1</sup> (hereinafter cited as "FIFRA"). Respondents have authority under that Act to cancel the registration of pesticides causing harm and injury to man, animals and the environment. In case of imminent hazard to the public, Respondents have authority to summarily suspend DDT registrations.

*Petition Submitted to Respondents.* Petitioners requested by a formal petition filed on October 31, 1969, that Respondents initiate proceedings under Section 4c of FIFRA<sup>2</sup> to cancel DDT registrations. (App. 1-19) (Such proceedings are initiated by the issuance of notices to registrants, which will hereinafter be referred to as "Section 4c Notices".) Petitioners made their request on the ground that pesticides containing DDT are not in compliance with the standards of FIFRA: in particular that DDT is causing immediate, serious, permanent and irreparable injury to man, the environment, and animals, including fish and wildlife. Petitioners also requested the immediate suspension of DDT registrations under Section 4c for the pendency of cancellation proceedings on the ground that DDT is an "imminent hazard to the public." Suspension is intended to protect the public by removing immediate hazards from the market during lengthy deregistration proceedings (see pp. 24-26. *infra*).

The Petition described in detail the evidence concerning the harm caused by DDT (App. 12-16), citing numerous scientific articles and an Affidavit of Dr. Charles F. Wurster, a professional environmental scientist. (App. 28-32) A submission

<sup>1</sup> 7 U.S.C. § 135 *et seq.*, 61 Stat. 168, as amended.

<sup>2</sup> 7 U.S.C. § 135b(c), 61 Stat. 168, as amended by 78 Stat. 190.

containing, among other things, a bibliography of 268 articles on DDT prepared by the Environmental Defense Fund accompanied the Petition.

The facts before the Respondents were contained in Petitioners' submissions and three reports of blue ribbon scientific committees appointed by government agencies: (1) Report of November, 1969, of the Commission of the Secretary of Health, Education and Welfare on Pesticides and their Relationship to Environmental Health (hereinafter cited as the Mrak Report),<sup>3</sup> which recommended that all uses of DDT<sup>4</sup> be eliminated except where essential to preserve human health and welfare (App. 34, 41, 43); (2) Report of the President's Science Advisory Committee of May 15, 1963, which called for the elimination of persistent pesticides (App. 40, 43); and (3) Report of May, 1969, of a Committee of the National Research Council, recommending immediate attention to the environmental problems of persistent pesticides. (App. 34, 41, 43) These reports, and, in particular, the Mrak Report, represent major fact-finding efforts

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<sup>3</sup>The Mrak Report's list of Commission members, staff members, advisors and contributors fills 12 pages (Mrak vi-xvii). Dr. Emil Mrak, Chancellor Emeritus of the University of California at Davis, was Chairman of the Committee. The report is 677 pages long. In preparing the report, over 5,000 references to scientific research were reviewed and evaluated (Mrak 5). It is a document on pesticides of unique scope and comprehension.

Because of the importance of the Mrak Report to this cause, Petitioners have lodged five copies with the Clerk. The Department of Health, Education and Welfare, in the case of *Environmental Defense Fund v. Finch*, No. 23812, has also filed with the Court 25 copies of the Mrak Report.

<sup>4</sup>"DDT," sometimes called dichlorodiphenyltrichloroethane, is a mixture of substances which has as its major ingredient chemical compound, 1,1,1-trichloro-2, 2-bis-(*p*-chlorophenyl)ethane. "DDT residues" include DDT; DDE, 1, 1-dichloro-2, 2-bis(*p*-chlorophenyl) ethylene; DDD, also known as TDE, 1,1-dichloro-2, 2-bis(*p*-chlorophenyl)ethane; and several other closely related chemical compounds derived from DDT by conversion processes within the environment. (App. 3)

on the part of governmental agencies. Facts regarding DDT on all essential points in this cause are dealt with in the Mrak Report. Petitioners will therefore cite specifically the Mrak Report where relevant.

DDT is a pesticide widely used for pest control in a variety of agricultural and non-agricultural situations. It is often used against insects and other pests in connection with tobacco, cotton, shade trees, forest trees, fruit trees, vegetables, and animals. In many cases, the use of DDT is not related to protecting human health or producing food.

One of the most important characteristics of DDT is its persistence in the environment. (App. 28, Mrak 103-104) Unlike many other pesticides, DDT is not broken down to non-toxic compounds by biological processes.

DDT is causing serious, permanent and irreparable harm to man, wildlife resources and to the earth's ecosystem and environment. The harm is of a widespread and immediate nature. (See generally App. 12-16, 28-31, Mrak 206-212) DDT and its residues have characteristics (App. 12-13, 28, Mrak 187) that cause it, when released into the environment, to accumulate in the tissue of non-target organisms (including man) (App. 12-13, 28, Mrak 187, 321-344) and concentrate in food chains. (App. 13, 28, Mrak 187) DDT has been in common use since World War II. (Mrak 45-46) Today more than 100 million pounds of DDT is manufactured and released into the environment each year. (App. 28, Mrak 48) As a result, the entire biosphere has become contaminated with DDT residues. (See generally Mrak 99-176)<sup>5</sup> DDT and DDT residues are contaminants of human foods, including many foods never treated with DDT (App. 13, 29, Mrak 136-140), and contaminate the tissues of virtually all human beings. (App. 13, 28, Mrak 321-341)

DDT has been proven a cancer-causing agent in test animals in a definitive study supported by the National Cancer

<sup>5</sup>DDT contaminates such diverse elements in the environment as air, rainwater, sea birds, antarctic animals, cosmetics and human milk. (App. 13, 29, Mrak 114, 116, 213)



Institute (App. 15-16, Mrak 470-472, 481-483) confirming earlier evidence. (App. 16, 30-31) The Mrak Report noted:

"... a remarkable degree of concurrence has been found to exist between chemical carcinogenesis in animals and that in man where it has been studied closely." (Mrak 482)

Another study found human victims of terminal cancer to contain more than twice the concentration of DDT residues in their fat than did victims of accidental death. (App. 16, 30-31, Mrak 495)

DDT is also endangering the reproduction and survival of many non-target organisms. (Mrak 179, 189, 206-212) For example, DDT and DDT residues are a major hazard to bird populations, causing direct death, reproductive failure and, in some species, catastrophic declines approaching extinction. (App. 13-14, 29, Mrak 179, 189, 211-212) DDT likewise is causing direct kills and reproductive failures of fish, threatening important freshwater and marine fisheries. (App. 14, 29, Mrak 209-210) DDT and DDT residues are also causing great damage to useful invertebrates of many species (App. 14-15, 30, Mrak 206-209) and are causing a variety of other ecological and environmental damage. (App. 15, 30, Mrak 189, 206-209)

The tragedy of DDT is compounded by the fact that alternative pest control techniques, particularly integrated techniques, are available for all DDT uses, which would not pose the same threats to the environment and to human health as DDT. (App. 16, Mrak 161-168)

*Order of Respondents.* On December 11, 1969, Respondents denied Petitioners' request for immediate suspension and substantially denied Petitioners' request to commence cancellation procedures under Section 4c of FIFRA. (App. 34-45)<sup>6</sup> Respondents took the following actions:

<sup>6</sup>Respondents' order consisted of a letter to Petitioners (App. 34-35) that incorporated by reference two notices: (1) Pesticide Registration Notice 69-17, dated November 20, 1969, initiating procedures to cancel registrations for the sale of DDT for four uses. (App. 40-42)

1. Denied Petitioners' request for immediate suspension of all uses of DDT:

2. Denied Petitioners' request for issuance of Section 4c notices for all economic poisons containing DDT. The Respondents issued a Section 4c notice for four uses of DDT: tobacco, shade trees, household uses, and, with exceptions, aquatic uses. Respondents did not disturb approximately 100 other uses of DDT:

3. Solicited comments concerning the approximately 100 other uses of DDT.

Respondents' determination of December 11, 1969, (App. 34-43) embodies their decision, states their findings and their reasons, and recites the evidence upon which their action was taken. The Mrak Report and the other government reports mentioned above (pp. 5-6) were explicitly relied on. (App. 35, 40-41, 43) Respondents found that the discontinuation of widespread use of DDT was warranted. (App. 41, 43-44) The notices referred to the extensive use of DDT, its persistence and the resulting environmental contamination. (App. 40, 43) It was specifically stated that the Respondents were taking action "to assure greater protection of the environment." (App. 35) The Respondents stated that their determination of December 11, 1969, together with the related action referred to therein, constituted their response to Petitioners' request. (App. 35)

The determination denied the relief sought by Petitioners (except in small part for four uses of DDT). Section 4c notices were not issued for most uses of DDT and no product containing DDT or any use of DDT has been suspended.

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This is a Section 4c notice for these four uses which initiates the FIFRA cancellation procedure and is of the type Petitioners sought for all economic poisons containing DDT. Thus, the issuance of this Section 4c notice granted partial relief to Petitioners. (2) Notice published in the Federal Register on November 25, 1969 (34 F.R. 18827) inviting views and comments for a period of 90 days in regard to other uses of DDT. (App. 43-45)

*Proceeding in this Court.* Petitioners sought review in this Court on December 29, 1969, asking the following relief:

(a) That the order of December 11, 1969, in response to the Petition of October 31, 1969, be set aside;

(b) that the Respondents be ordered to follow statutory procedures, issuing § 4c notices to commence the procedures by which the registrations of all economic poisons that contain DDT could be cancelled; and

(c) that the Respondents be ordered to immediately suspend the registration of all economic poisons that contain DDT during § 4c proceedings.

Because of the urgency of Petitioners' cause, Petitioners moved, on December 29, 1969, that the matter be advanced on the docket and expedited. Respondents moved on January 12, 1970, to dismiss for lack of jurisdiction. Petitioners filed their Opposition thereto on January 22, 1970. On January 29, 1970, this Court, noting "the urgency of petitioners' complaint and the importance of the public safety considerations which it raises," granted Petitioners' Motion to Expedite and ordered that the jurisdictional questions raised by Respondents be deferred for consideration with the merits.

On February 2, 1970, Respondents moved for reconsideration of the Court's January 29 order and announced to the Court that they would not need the period allotted to file a brief and would rest completely on their Motion to Dismiss. (Motion to Reconsider, p. 6) Respondents urged the Court, should it deny the Motion to Reconsider, to set the cause down for oral argument as soon as possible following the filing of Petitioners' brief.

## ARGUMENT

## I.

**RESPONDENTS HAVE ERRED IN DENYING PETITIONERS' REQUEST THAT THEY ISSUE NOTICES UNDER SECTION 4c OF FIFRA TO COMMENCE ADMINISTRATIVE PROCEEDINGS BY WHICH REGISTRATIONS OF ALL ECONOMIC POISONS THAT CONTAIN DDT COULD BE CANCELLED**

The Respondents denied Petitioners' request that they issue Section 4c notices for all economic poisons containing DDT. Respondents, however, are required by FIFRA to issue such notices at this time because (a) they have made a finding that widespread DDT use should be discontinued, and (b) because the evidence before them compels a finding that DDT use should be discontinued.

**A. The Respondents Must Issue Section 4c Notices Because They Have Made a Finding That Widespread DDT Use Should Be Discontinued**

FIFRA was passed in 1947 to protect the public from harmful or ineffective pesticides and other economic poisons, *i.e.*, substances intended for pest or weed control.<sup>7</sup> The Act was amended in 1964 to better protect the public by closing loopholes which had permitted manufacturers to market unsafe products. The amendment gave Agriculture effective means of refusing, cancelling, and suspending registrations.<sup>8</sup> Specifically, FIFRA sets out standards and procedures with regard to pesticides to "protect the public"<sup>9</sup>

<sup>7</sup>FIFRA § 2a; 7 U.S.C. § 135(a), 61 Stat. 163 (1947); House Report No. 313, 80th Cong., 1st Sess. (1947); 109 Cong. Rec. 20079 (Statement of Senator Ellender), 88th Cong., 1st Sess. (1963).

<sup>8</sup>See, *e.g.*, Senate Report No. 573 (on S. 1605), 88th Cong., 1st Sess. (1963); House Report No. 1125 (on H.R. 9739), 88th Cong., 2d Sess. (1964); 110 Cong. Rec. 2948-49, 88th Cong., 2d Sess. (1964); 110 Cong. Rec. 7189, 88th Cong., 2d Sess. (1964); 109 Cong. Rec. 20079, 88th Cong., 1st Sess. (1963).

<sup>9</sup>FIFRA § 2(z)(2), 7 U.S.C. § 135(z)(2)(c), 61 Stat. 166, as amended by 73 Stat. 287.

and "prevent injury to living man and other vertebrate animals, vegetation and useful invertebrate animals."<sup>10</sup>

Economic poisons—including DDT—are required to be registered with the Secretary of Agriculture prior to sale in interstate commerce.<sup>11</sup> They cannot, however, be registered unless they are properly labeled. Economic poisons are "misbranded" for these purposes if the label is not adequate, if complied with, to avoid injury to the public and to man, animals, and the environment. If no label can be written which will prevent such injury, an economic poison is inherently misbranded and cannot be registered or sold in interstate commerce.<sup>12</sup>

Upon a preliminary finding that an economic poison is not in compliance with FIFRA, a Section 4c notice is issued to the registrant. The Section 4c notice issued upon such a preliminary finding triggers an administrative procedure which can lead to cancellation. The registrant can, under Section 4c, challenge the Secretary's preliminary determination through administrative procedures which include a reference to an advisory committee of qualified experts selected by the National Academy of Science and a public hearing before an examiner. At the end of such procedures, the Secretary decides whether or not to cancel the registration.

The issuance of a Section 4c notice is not equivalent to a final determination that registration must be cancelled. Indeed, Congress, in reviewing the administration of FIFRA, stressed that the Secretary of Agriculture should issue a Section 4c notice "*whenever a reasonable question as to*

<sup>10</sup>FIFRA § 2(z)(2)(d) and (g), 7 U.S.C. § 135(z)(2)(d) and (g), 61 Stat. 166, as amended by 73 Stat. 287.

<sup>11</sup>FIFRA § 4(a)-(c), 7 U.S.C. § 135b(a)-(c), 61 Stat. 167-168, as amended.

<sup>12</sup>FIFRA § 135(z)(2)(c) & (d), 7 U.S.C. § 135(z)(2)(c) & (d); see also 7 C.F.R. §§ 362.9, 362.10(k), 362.105(c), 362.105(h), 362.106(f)(4)(v), 362.108(c)(6) and 362.121(g).

*the safety of a registered product becomes apparent.*" "Deficiencies in Administration of the Federal Insecticide, Fungicide and Rodenticide Act." House Rept. 91-637, 91st Cong., 1st Sess., Nov. 13, 1969, p. 19 (emphasis in original). In the course of the subsequent administrative proceedings the Secretary of Agriculture has an opportunity to weigh all competing considerations and then make a final determination on cancellation.

It is plain that there is "a reasonable question as to the safety of" DDT. Indeed, the Respondents have found that environmental considerations warrant the discontinuation of widespread use of DDT. The Respondent specifically found (App. 41, 43-44).

"Current information on levels of DDT in the environment warrant the discontinuation of widespread use of DDT when such use is not essential in the production of food or the protection of health."

Having made a finding that the widespread use of DDT should be discontinued, the Respondents have a duty to issue Section 4c notices for all economic poisons containing DDT.<sup>13</sup> This is the only way in which the procedure for cancellation of DDT registration can be started.

While calling for general discontinuation of DDT use, Respondents' finding leaves open the possibility that some uses of DDT might be permitted in unusual circumstances. Such questions are of the type which would properly be considered administratively *after* issuance of Section 4c notices.

There is no rational basis at this stage of the proceedings upon which the Respondents could limit their action to four uses of DDT and leave all other uses unaffected. Respondents' finding that widespread use of DDT should be discontinued applies with equal force to all DDT uses. One cannot properly make such a sweeping finding and

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<sup>13</sup>Section 4c provides that "Whenever the Secretary . . . determines that registration of an economic poison should be cancelled, he shall notify . . . the registrant." 7 U.S.C. § 135b(c).

then apply it to only four out of 100 DDT uses. DDT's mobility, solubility, and persistence characteristics (App. 12-13, 28, Mrak 187) make it irrelevant as to where it is injected into the ecological system—whether it is sprayed on tobacco or on cotton.

Moreover, there is no justification for Respondents' refusal to issue Section 4c notices for DDT use on such products as cotton, lumber products, woolens, and lawns. Plainly, such uses have nothing to do with human health or food production. Respondents did issue Section 4c notices for four uses, but did not offer any explanation for the selection of these four uses or the exclusion of others.

Instead of issuing Section 4c notices for all uses of DDT, the Respondents have invited "views and comments" on about 100 uses. (App. 43-45) This comment procedure has no basis in FIFRA; it will be duplicated in the proceedings which follow issuance of Section 4c notices; and it adds a wholly unnecessary element of delay to the already protracted administrative procedures under Section 4c.

The invocation of this comment procedure is an example of the Respondents' failure to carry out the policy of FIFRA, which has been exhaustively documented by the Government Operations Committee of the House of Representatives (H.Rept. 91-637, p. 15, *supra*).<sup>14</sup> Among the administrative derelictions catalogued by the Government Operations Committee, the Committee noted:

*"The Pesticides Regulation Division did not take prompt or effective cancellation action in cases where it had reason to believe a registered product might be ineffective or potentially hazardous (Emphasis in original)"*

<sup>14</sup>The procedure is the same as that indulged in by Respondents with regard to certain arsenicals.

"Despite the fact that a contested cancellation proceeding could take many months at best, the subcommittee found that in the case of certain arsenic compounds, USDA resorted to an unnecessary preliminary procedure which took two years before even starting cancellation proceedings." (H.Rept. 91-637 at 50)



"Although PRD has had specific cancellation authority for more than 5 years, it has *never* secured cancellation of a registration in a contested case. (emphasis added)

"The subcommittee investigation disclosed evidence of lengthy and unwarranted delays in initiating cancellation action after facts sufficient to justify such action became known to PRD."<sup>15</sup>

In fact, the Committee reported that Agriculture really took no action at all if a registrant contested a notice:

"Until a few weeks ago, PRD did not even have procedures for conducting hearings or studies which registrants may request as a matter of right before cancellation action can become effective. When registrants receiving cancellation notices requested hearings or studies, prosecution of the cancellation action was halted and the product left on the market." *Ibid.*

**B. Respondents Must Issue Section 4c Notices for Economic Poisons Containing DDT Because the Evidence Before Them Compels a Finding That DDT's Use Should Be Discontinued**

As stated above (p. 12), the Respondents have made a finding that widespread DDT use should be discontinued. In addition, the evidence before the Respondents conclusively establishes that DDT is out of compliance with FIFRA standards and compels such a finding. A Section 4c notice must be issued when there is a preliminary finding that a pesticide does not comply with FIFRA and should be discontinued. In like fashion, Section 4c notices must issue where, as in this case, the requisite finding is compelled by evidence.

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<sup>15</sup>House Report 91-637, *supra* at 15-16.



As long as ten years ago, Justice Douglas noted the widespread effect of DDT on birds, wildlife and human health. He stated that these effects

"... have led to increasing concern in many quarters about the wisdom of the use of this and other insecticides. The alarms that many experts and responsible officials have raised about the perils of DDT underline the public importance in this case." *Murphy v. Butler*, 362 U.S. 929, 933-934 (1960), dissenting opinion on denial of certiorari.

Scientists have in the intervening years established that DDT is even more damaging than previously believed.

The facts are, as set out by Petitioners' submissions to Agriculture and the Mrak Report (and summarized above, pp. 6-7), that DDT is causing widespread harm and injury to man, animals and environment. (App. 12-16, 28-31, Mrak 179, 189, 206-212) In addition, DDT is a cancer-causing agent (App. 15-16, 30-31, Mrak 470-472, 481-483, 495) that is now a general contaminant of the food and tissue of mankind. (App. 13, 28-29, Mrak 136-140, 321-341). It is clear that DDT does not meet the standards in FIFRA Section 2(z)(2)(c), (d) & (g), which protect the "public" and "man, vertebrate animals, vegetation and useful invertebrate animals" from injury.

Indeed, if Respondents failed to find that DDT does not comply with FIFRA, such failure would constitute an abuse of discretion. Respondents seem to suggest that they have absolute discretion. (Motion to Reconsider, p. 5) The legislative history of Section 4c of FIFRA makes it clear, however, that Respondents have a duty to protect the public from harmful pesticides (see p. 10, *supra*). The facts in this case are such that all the evidence bearing on the relevant factors carcinogenicity, injury to animals, scope of contamination, persistence—compel a finding of noncompliance with FIFRA standards.

In making the finding that DDT is out of compliance with FIFRA and measuring any discretion of Respondents,

it must be kept in mind that Congress intended Section 4c procedures to be a mechanism for placing the burden of proof on registrants, requiring them to prove to Respondents that economic poisons comply with FIFRA standards. Prior to the 1964 amendments,<sup>16</sup> a manufacturer could demand that his product be registered even if the Secretary of Agriculture objected. If the Secretary wished to attack such a protest registration, he had to file suit and assume the burden of proof in establishing that the product did not conform to FIFRA standards. The 1964 amendments abolished this practice and placed the burden of proving compliance on the registrant:

"The purpose of this bill (H.R. 9739) is to end the practice of protest registration whereby the manufacturer of a pesticide can market a product despite Department of Agriculture doubts as to its effectiveness and safety.

\* \* \*

"The principal effect of registration under protest is to shift the burden of proof from the registrant to the Government. If the product...is registered under protest, the Government has the burden of proving that the product does not comply with the Act.

\* \* \*

"The bill will correct this situation and afford greater protection to the public by repealing the authority for registration under protest."<sup>17</sup>

Congresswoman Leonor Sullivan of Missouri stated on February 17, 1964:

"... I am strongly in favor of the legislation now before you to require industry, rather than the Federal Government, to shoulder the burden of proof in

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<sup>16</sup> Amendments of May 11, 1964, Pub. Law 88-305, 78 Stat. 190.

<sup>17</sup> H. Rept. No. 1125 on H.R. 9739, 88th Cong., 2nd Sess., 64 U.S.C. Cong. & Ad. News 2166-2167.

connection with the marketing of pesticides which may be unsafe for use as intended.

\* \* \*

"We must close any loopholes in the law which permit manufacturers to market products they cannot prove are safe in use in the manner intended. The burden of proof should not rest on the Government, because great damage can be done during the period the Government is developing the data necessary to remove a product which should not be marketed."<sup>18</sup>

Despite the fact, however, that FIFRA places the burden of proving pesticides to be safe on manufacturers, Agriculture does not base its decisions of cancellation on that principle. The government Operations Committee stated:

"A mistaken belief that positive evidence of hazard—rather than simply a lack of adequate assurance of safety—is necessary to support a cancellation action appears to have been a factor in PRD's failure to initiate such action in cases where it was obviously justified."<sup>19</sup>

The Committee revealed that Agriculture had registered 1,600 products objected to over a five-year period by the Public Health Service because of questions as to their safety. The Committee found that Agriculture was:

"... in effect demanding that HEW supply scientific proof of hazard to support its objections rather than asking the would-be registrant to resolve any doubt

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<sup>18</sup> 110 Cong. Rec. 2948-9, 88th Cong., 2nd Sess., 1964. Also see debate, 110 Cong. Rec. 7189. Congresswoman Sullivan appeared before the Subcommittee of the House Agriculture Committee in support of the legislation. At that time, she was Chairman of the Subcommittee on Consumer Affairs of the House Banking and Currency Committee.

<sup>19</sup> House Report 91-637, *supra* at 16.

by providing adequate evidence of the products' safety."<sup>20</sup>

Because of its concern with Respondents' misallocation of the burden of proof and other deficiencies in enforcing FIFRA, the Government Operations Committee urged Respondents to "...take appropriate steps to insure that cancellation proceedings are promptly initiated whenever a reasonable question as to the safety of a registered product becomes apparent."<sup>21</sup>

Petitioners reiterate that the facts in this case are that DDT is substantially out of compliance with FIFRA in that it is causing substantial injury to man, animals and the environment. The evidence in the record of the harm being caused by DDT compels Respondents to make a preliminary finding that DDT should be discontinued, and that Section 4c notices should be issued. In such circumstances the burden is on the registrant to come forward in a Section 4c proceeding and affirmatively prove the safety of their products. A failure to make a finding that DDT use should be discontinued would be an abuse of discretion.<sup>22</sup>

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<sup>20</sup>House Report 91-637, *supra* at 14; also see pp. 36-37.

<sup>21</sup>House Report 91-637, *supra* at 19 (emphasis in original).

<sup>22</sup>Petitioners note that several state agencies have recently found DDT to be injurious to man, animals and the environment. The Michigan Department of Agriculture cancelled, effective June 27, 1969, Michigan registrations of DDT (with three minor exceptions). Cancellation was based in part on the fact that DDT is injurious to vertebrates in violation of standards in Section 2(z)(2) of the Michigan Economic Poisons Act, 286.162 Mich. Comp. Laws Ann. § 2(z)(1)(2)a-(2)(h), which are parallel to the standards in Section 2(z)(2) of FIFRA.

California has taken action cancelling DDT registrations under provisions designed to protect the environment, man, animals and the public health and safety. See Sections 12824, 14005, Agriculture Code of California (Orders of October 20, 1969 and December 9, 1969, of California Department of Agriculture). Similar action has been taken in Illinois (see Illinois Pesticides Control Law, 5 Ill. Stat.

## II

**RESPONDENTS HAVE ERRED IN DENYING PETITIONERS' REQUEST THAT THEY SUSPEND DDT REGISTRATIONS IMMEDIATELY AND FOR THE DURATION OF SECTION 4c CANCELLATION PROCEEDINGS**

Petitioners requested Agriculture to suspend DDT registrations immediately for the duration of Section 4c proceedings because of the immediacy and widespread nature of the harm it is causing. Respondents have denied Petitioners' request and refused to suspend the registration of any economic poison containing DDT.

The Suspension Clause of Section 4c reads as follows:

"Notwithstanding any other provision of this section, the Secretary may, when he finds that such action is necessary to prevent an imminent hazard to the public, by order, suspend the registration of an economic poison immediately. In such case, he shall give the registrant prompt notice of such action and afford the registrant the opportunity to have the matter submitted to an advisory committee and for an expedited hearing under this section."

Respondents are compelled by the facts in this case to find that DDT is an imminent hazard to the public. The evidence in the case established that DDT is a cancer-causing agent (App. 15-16, 30-31, Mrak 470-472, 481-483) which is being widely dispersed through the environment. (App. 13, 29, Mrak 99-176), contaminating human food (App. 13, 29, Mrak 136-140) and tissue (App. 13, 28, Mrak 321-341). The evidence also establishes that DDT is causing serious harm to fish and wildlife populations (App. 13, 28, Mrak 179, 189, 206-212), and is bringing some species to the brink of extinc-

Ann. § 87d.5); Florida (see Florida Law of July 9, 1969, Fla. Stat. § 487.042, Rule Section 7E-2.22 of December 17, 1969); Canada (see 114 House of Commons Debates 393, 28th Parliament, 2d Sess., Nov. 3, 1969); and Ontario (see Order-in-Council 3654/69 establishing Regulation 386-69 of September 24, 1969).

tion. The suspension provision is designed to protect the public from such hazards.

Because of the nature and extreme seriousness of the imminent hazard which is established by the facts of record, the Respondents are compelled to suspend DDT registrations.

#### A. Respondents Are Compelled To Find That DDT Is an Imminent Hazard to the Public

*Harm to Wildlife.* Justice Douglas noted the concern of experts and officials over the harmful effects of DDT on wildlife ten years ago.<sup>23</sup> That concern has now grown with the ever-increasing evidence that DDT threatens the destruction of whole species.

The evidence submitted by Petitioners to the Respondents, confirmed by the Mrak Report, is that DDT is causing ecological damage across a broad spectrum of life forms. As a result, we are in imminent danger of losing many species which have suffered catastrophic declines. Examples of prominent species which are now threatened are the national bird, the Bald Eagle, and the Peregrin Falcon (Mrak 211-212). Another serious threat is posed to important fresh and salt water fisheries. (App. 14, 29, Mrak 208-210).

The suspension provision was added to FIFRA to protect the public in these circumstances and in others. The legislative history of the suspension provision demonstrates that it was designed to protect fish and wildlife. The 1964 amendments were passed as a result of the concern generated by Rachel Carson's *Silent Spring*.<sup>24</sup> The Senate Agriculture Committee indicated that the suspension provisions were intended to encompass protection of fish and wildlife.<sup>25</sup>

<sup>23</sup>*Murphy v. Butler, supra.*

<sup>24</sup>See statement of Senator Ribicoff, 110 Cong. Rec. 7189; Statement of Congressman Sullivan, 110 Cong. Rec. 2949.

<sup>25</sup>p. 3. S. Report No. 573, 88th Cong., 1st Sess. (1963).

In addition to their obligations under FIFRA, Respondents were given a special duty to protect wildlife in 1966 under the Endangered Species Act:<sup>26</sup>

"It is further declared to be the policy of Congress that the Secretary of the Interior, the Secretary of Agriculture, and the Secretary of Defense, together with the heads of bureaus, agencies and services within their departments, shall seek to protect species of native fish and wildlife, including migratory birds that are threatened with extinction."

The Endangered Species Act calls on Respondents to act with special concern when fish and wildlife species are threatened with extinction. On the record of this case, Respondents are compelled to make the finding that such fish and wildlife species are faced with extinction and, therefore, that DDT is an imminent hazard.

*Carcinogenicity.* The undisputed evidence in the record of this cause is that DDT is a cancer-causing agent. (App. 15-16, 30-31, Mrak 470-472, 481-483). It is also the undisputed evidence that DDT is now found in virtually all human food and human flesh. (App. 13, 28-29, Mrak 136-140, 321-341).

Congress has, with the passage of the two Delaney Amendments to the Food, Drug and Cosmetic Act, declared as a national policy that cancer-causing agents are unsafe and are to be strictly banned from man's food. The first amendment of the Food Additives Amendment of 1958 provides:

"... No additive shall be deemed to be safe if it is found to induce cancer when ingested by man or animal, or it is found, after tests which are appropriate for the evaluation of safety of food additives, to induce cancer in man or animal."<sup>27</sup>

<sup>26</sup> 16 U.S.C. § 668aa *et seq.*, 80 Stat. 926.

<sup>27</sup> Section 409(c)(3)(A) of the Food, Drug and Cosmetic Act, 21 U.S.C. § 348(c)(3)(A), 72 Stat. 1785. The second Delaney clause was added as § 706(b)(5)(B) to the Food, Drug and Cosmetic Act in 1960



The Delaney Amendments operate to prevent any amount of a food additive or color additive from being added to food if such additive is a cancer-causing agent. This principle of total exclusion which takes away all discretion from officials of the Food and Drug Administration, is based on the fact that scientists have never found a threshold level for cancer-causing agents.

Secretary of Health, Education and Welfare, Arthur S. Flemming, in his testimony concerning the color additives amendment, which was adopted by the House Committee on Interstate and Foreign Commerce,<sup>28</sup> said:

"The preponderance of scientific evidence clearly dictates our position: Our advocacy of the anticancer provision in the proposed color additives amendment is based on the simple fact that no one knows how to set a safe tolerance for substances in human foods when those substances are known to cause cancer when added to the diet of animals.

\* \* \*

"Unless and until there is a sound scientific basis for the establishment of tolerances for carcinogens, I believe the Government has a duty to make clear—in law as well as in administrative policy—that it will do everything possible to put persons in a position where they will not unnecessarily be adding residues of carcinogens to their diet.

\* \* \*

"We have no basis for asking Congress to give us discretion to establish a safe tolerance for a substance which definitely has been shown to produce cancer when added to the diet of test animals. We simply have no basis on which such discretion could be exercised because no one can tell us with any assurance at all how to establish a safe dose of any cancer-producing substance."

and is known as the Color Additives Amendment, 21 U.S.C. § 376 (b)(5)(B), 74 Stat. 399.

<sup>28</sup>H. Rept. No. 1761, 88th Cong., 2d Sess. (1960).



In *Bell v. Gooddard*, 366 F.2d 177, 181 (7th Cir. 1966), the Seventh Circuit stated:

"The Delaney Clause, 21 U.S.C. § 348(c)(3)(A), provides that no additive 'shall be deemed to be safe if it is found to induce cancer when ingested by man or animal,' and is generally intended to prohibit the use of *any* additives which under any conditions induce cancer in *any* strain of test animal."

The policy of strict ban on cancer agents of the Delaney Amendments was applied to pesticides under the pesticide regulation law<sup>29</sup> administered by HEW, which is the companion of FIFRA. In 1959, the Food and Drug Administration seized a large quantity of cranberries sprayed with the agricultural poison, aminotriazole.<sup>30</sup> This action was based on scientific evidence that aminotriazole caused cancer. Secretary Flemming based his action on his administrative determination that the Delaney Amendment must be applied to pesticides, even though it was not specifically directed to them.<sup>31</sup>

Even though the Delaney clauses were not enacted as part of FIFRA, they established as policy the principle that carcinogens are to be kept strictly out of food. Even if the Delaney Amendments did not exist, however, it would not change the proposition that carcinogens in man's diet must be considered imminent hazards to the public. The evidence in this case compels the finding that DDT is a carcinogen which now occurs regularly in man's diet.

<sup>29</sup> 21 U.S.C. § 346a, 68 Stat. 511. This section is the subject of the companion case before this Court, *Environmental Defense Fund, Inc., et al v. Finch, et al.*, No. 23812. With regard to the discussion of carcinogenicity, see generally Petitioners' Brief in No. 23812.

<sup>30</sup> See CCH Food, Drug and Cosmetic Law Reporter, § 59, 109.03.

<sup>31</sup> See the discussion of the cranberry episode in Brief for Petitioners, *Environmental Defense Fund v. Finch*, No. 23812.

B. Because of the Seriousness and Nature of the Facts Upon Which Respondents Are Compelled to Find DDT is an Imminent Hazard to the Public. They Are Compelled to Suspend DDT Registrations

As we have just shown, the evidence in this case compels findings that DDT is an imminent hazard to the public. Because of the nature and extreme seriousness of the hazards involved, immediate action on the part of Agriculture to suspend DDT registrations is required.

Respondents argue to the contrary (Motion to Reconsider, p. 5, note 4) that suspension is within their absolute discretion because Section 4(c) says "the Secretary *may* [suspend], when he finds that such action is necessary to prevent an imminent hazard to the public. . . ." The word *may*, however, cannot be read to give Petitioners absolute discretion under these circumstances. It would make no sense to give Respondents discretion to ignore their own findings (or findings compelled by evidence before them) that a pesticide is an imminent hazard to the public. The suspension clause was placed in the Act to protect the public from serious injury. Congress did not intend for Respondents to sit idly by while that injury occurs.<sup>32</sup>

It is difficult to justify a claim of absolute discretion in light of the fact that the suspension provision was enacted to provide *immediate* relief to the public during Section 4c cancellation proceedings.<sup>33</sup> Congress was concerned because of the substantial delays built into the Section 4c procedure.

An uncontested cancellation is effective thirty days after service of the Section 4c notice. The registrant may, how-

<sup>32</sup>"The burden of proof should not rest on the Government, because great damage can be done during the period the Government is developing the data necessary to remove a product which should not be marketed." Congresswoman Sullivan, 110 Cong. Rec. 2949, 88th Cong., 2d Sess., (1964).

<sup>33</sup>109 Cong. Rec. 20079, 88th Cong., 1st Sess. (1963).

ever, request the matter be referred to an advisory committee or file objections and request a public hearing. Without going into specifics, which are set out in Section 4c, there are 360 days of built-in delay in these procedures, not including the unspecified time needed to form advisory committees, to prepare for and hold hearings, and to obtain judicial review.

The delays inherent in Section 4c have been compounded by Agriculture's actual practice. For example, in the Section 4c proceedings initiated for the four uses of DDT, the Stouffer Chemical Company requested on December 19, 1969, that the matter be referred to an advisory committee. As of the date of this brief, however, almost two months later, no such advisory committee has been appointed. In addition, while several other manufacturers requested a public hearing with regard to their products on December 19, 1969, no hearing examiner has been appointed. In fact, Respondents have not even filed an answer to the manufacturers' objections which is required by their own rules within 20 days (7 C.F.R. 364.23(a), 34 F.R. 13823 (Aug. 29, 1969)).

Unlawful delay by Agriculture in Section 4c proceedings, the House Government Operations Committee has found, is Agriculture's norm.<sup>34</sup>

Such delays in cancellation procedures would, perhaps, be tolerable to the public if Respondents suspended poisons in accordance with the obvious Congressional intent. Among the criticisms leveled at Agriculture by the Government Operations Committee, however, was that it failed to take action to remove hazardous products from the market. (H. Rept. 91-637, *supra*, at 8-9, 16, 52-54). In fact, Agriculture has only used its suspension power once, and then to no effect:

"PRD has no procedures or criteria for determining when a registration should be suspended on the ground that a product constitutes an 'imminent

<sup>34</sup> See p. 13-14, *supra*.

hazard' to the public. Such action has been taken only once; but a product containing an identical ingredient was allowed to remain on the market without even bearing a required warning notice on its label." (House Report, p. 16.)

If the Respondents cannot be made to carry out their duty under FIFRA in a case as blatant as this, the suspension provision will certainly continue in disuse. And, what is worse, the public will have to suffer the havoc of many more millions of pounds of DDT waiting for Agriculture to act.

### III

#### PETITIONERS HAVE STANDING TO OBTAIN REVIEW

Generally speaking, those persons whose interests a statute is designed to protect have standing under that statute to protect those interests. *Hardin v. Kentucky Utilities Co.*, 370 U.S. 1 (1968); *Curran v. Laird*, \_\_\_ App. D.C. \_\_\_, \_\_\_ F.2d (No. 21,040 D.C. Cir., Nov. 12, 1969 (en banc)). When the interest a statute protects is one which is not easily identifiable with any particular group, the courts have granted standing on behalf of the public to those persons who by their activities and conduct exhibit a special interest in the area protected by the statute in question. The two leading decisions on this point are *Office of Communication of the United Church of Christ v. Federal Communications Commission*, 123 App. D.C. 328, 359 F.2d 994 (1966), and *Scenic Hudson Preservation Conference v. Federal Power Commission*, 354 F.2d 608 (2d Cir. 1965).<sup>35</sup>

<sup>35</sup> Also see *Nashville I-40 Steering Committee v. Ellington*, 387 F.2d 179, 182 (6th Cir. 1967); *Norwalk Core v. Norwalk Redevelopment Agency*, 395 F.2d 920 (2nd Cir. 1968); *Road Review League, Town of Bedford v. Boyd*, 270 F. Supp. 650, 660-61 (S.D.N.Y. 1967); *Citizens Committee for the Hudson Valley v. Volpe*, 302 F. Supp. 1083 (S.D.N.Y. 1969); *Powelton Civic Home Owners Ass'n v. Department*

FIFRA is designed to protect the public from pesticide hazards, and, in fact, Congress intended that public groups concerned with those hazards would participate in FIFRA proceedings. Petitioners have shown the special interest in environmental protection to make their participation proper on behalf of the public.

#### A. FIFRA Contemplates Public Participation in its Proceedings

FIFRA was originally passed to protect the public from harmful pesticides.<sup>36</sup> Section 4d was added to FIFRA by the 1964 amendments,<sup>37</sup> the purpose of which was to better protect the public from pesticide hazards by closing the protest registration loophole and by tightening generally administrative procedures. (see pp. 15-17, *supra*).<sup>38</sup> The House Agriculture Committee Report stated:

*of Housing and Urban Development*, 284 F. Supp. 809, 821-828 (E. D. Penn. 1968); *Parker v. United States*, \_\_\_ F. Supp. \_\_\_ (No. C-1368, D.C. Colo., Dec. 24, 1969); *Sierra Club v. Hickel*, \_\_\_ F. Supp. \_\_\_ (No. 51464, N.D. Calif., July 23, 1969). Three District Courts have upheld the standing of the Sierra Club in environmental suits, including two involving Agriculture. *Parker v. United States*, *supra*; *Sierra Club v. Hickel*, *supra*, and *Citizens Committee v. Volpe*, *supra*. (+Copies submitted to Court with Opposition to Motion to Dismiss). Scholarly comment on this subject approves the position taken in these cases. See Berger, *Standing to Sue in Public Actions: Is it a Constitutional Requirement*, 78 Yale L.J. 816 (1969); Rogers, *The Need for Meaningful Control in the Management of Federally Owned Timberlands*, 4 Land & Water L. Rev. 121 (1969); Allen, *The Congressional Intent to Protect Test: A Judicial Lowering of the Standing Barrier*, 41 Colo. L. Rev. 96 (1969); Jaffee, *The Citizen as Litigant in Public Actions: The Non-Hohfeldian or Ideological Plaintiff*, 116 U. Pa. L. Rev. 1033 (1968); Reich, *The Law of the Planned Society*, 75 Yale L.J. 1227 (1966).

<sup>36</sup>House Report No. 313, 80th Cong., 1st Sess. (1947).

<sup>37</sup>Act of May 12, 1964, 78 Stat. 190.

<sup>38</sup>See, e.g., Senate Report No. 573 (on S. 1605), 88th Cong., 1st Sess. (1963); House Report No. 1125 (on H.R. 9739), 88th Cong.,

"The bill will...afford protection to the public by repealing the authority for registration under protest."<sup>39</sup>

Repealing the protest registration provision had the effect of requiring:

"...industry rather than the Federal Government to shoulder the burden of proof in connection with the marketing of pesticides which may be unsafe for use as intended."<sup>40</sup>

The fact that FIFRA and its 1964 amendments were designed to protect the public is sufficient to confer standing on those who have a special interest in environmental pollution and health. The language of Section 4d of FIFRA<sup>41</sup> and its legislative history specifically confirm this result.

Section 4d of FIFRA provides judicial review for "any person who will be adversely affected."<sup>42</sup> An attempt by the National Agricultural Chemical Association to substitute the language, "the applicant for registration, or registrant," for the term "any person...adversely affected," was rejected. See p. 49, Hearings, *Regulation of Economic Poisons*, August 21 and 22, 1963, Subcommittee on Departmental Oversight and Consumer Relations of the Committee on Agriculture.<sup>43</sup>

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2d Sess. (1964); 110 Cong. Rec. 7189, 88th Cong., 2d Sess. (1964); 109 Cong. Rec. 20079, 88th Cong., 1st Sess. (1963).

<sup>39</sup>House Report No. 1125 (on H.R. 9739), 88th Cong., 2d Sess., 64 U.S. Code, Cong. & Ad. News 2167.

<sup>40</sup>Leonor K. Sullivan, 110 Cong. Rec. 7189, 88th Cong., 2d Sess. (1964).

<sup>41</sup>7 U.S.C. § 135b(d).

<sup>42</sup>(Emphasis added) In addition, the Administrative Procedure Act, 5 U.S.C. § 702, provides review for anyone "adversely affected or aggrieved by agency action under the meaning of a relevant statute."

<sup>43</sup>88th Cong., 1st Sess., Aug. 21-22, 1963.

The colloquy which occurred when the amendment was offered shows conclusively that Congress intended that the proper representatives of the public were intended to have standing:

Parke C. Brinkley (President of the National Agricultural Chemical Association): "It refers to the appeal and lets anybody who wants to do it, whereas this amendment would confine it to the person whose company is actually involved.

\* \* \*

Congressman Hagen: "Your amendment excludes The American Medical Association, for example, from requesting public hearings?

Robert L. Ackerly (counsel with Mr. Brinkley): "Yes; that is true.

Hagen: "It is merely a matter between the Department and the Company?"

Ackerly: "That is correct. . . .

Hagen: "But the public, in effect, would be excluded from participating?"

Ackerly: "The public would be excluded from participating in this procedure; that is correct.

\* \* \*

Congressman Harvey: "I think it is generally common knowledge that many of the trade-named pesticides have come about as a result of work by the research division of the Department of Agriculture. They have made research findings available to the companies who, in turn, have marketed them under trade names.

"It would seem to me . . . if such a condition is set up in which the Secretary of Agriculture and the Company in question are in this situation, that they would be both on the same side of the issue." (Hearings, pp. 49-51)



In addition to the legislative history, the language in FIFRA, which provides jurisdiction for "any person . . . adversely affected," is very close to the language involved in *United Church of Christ* and *Scenic Hudson Preservation Conference*.<sup>44</sup> In those two cases, the Court held that this language conferred standing on organizations representing the public. Petitioners believe this Court's statement on standing in *United Church of Christ* is in fact even more suitable to this case:

"The theory that the Commission can always effectively represent the listener interests in a renewal proceeding without the aid and participation of legitimate listener representatives fulfilling the role of private attorneys general is one of those assumptions we collectively try to work with so long as they are reasonably adequate. When it becomes clear, as it does to us now, that it is no longer a valid assumption which stands up under the realities of actual experience, neither we nor the Commission can continue to rely on it. The gradual expansion and evaluation of concepts of standing in administrative law attests that experience rather than logic or fixed rules has been accepted as the guide. 359 F.2d at 1003-1004.

#### **B. The Petitioners Have Exhibited the Requisite Interest in DDT**

The Petitioners have, by their activity and conduct, exhibited the proper interest in the problems involved in this case to represent the public. The Petitioners are four national organizations and one local organization with active programs in the areas of environmental protection and wildlife conservation. Together, Petitioners represent, among their members alone, two hundred thousand concerned citizens. They have shown a strong interest in pesticide problems in general and DDT problems in particular. They have taken various legal and administrative actions dealing

<sup>44</sup> Also see the cases and authorities cited in note 35, p. 26, *supra*.

with DDT. (App. 1-3, Motion to Intervene of Izaak Walton League)

In *United Church of Christ*, the Church was held to represent the interest of the listening public. In *Scenic Hudson*, conservation groups, including Petitioner Sierra Club, were held to represent the interests of the public in scenic beauty and wildlife conservation. So equally here Petitioners represent the interest of the public in the protection of man, animals and the environment from the hazards of pesticide pollution.

The Respondents contend that environmental protection groups have no place in the decision-making process concerning pesticides. They contend that Department of Agriculture and the pesticide companies should be left to safeguard the nation's environment. Judicial review would be limited to the aggrieved manufacturer if the Respondents ever cancelled a pesticide registration. Petitioners submit that this view of the scheme of pesticide regulation and of the administrative process must be rejected.

#### IV

#### THERE IS A FINAL ORDER BEFORE THE COURT FOR REVIEW

Petitioners requested Agriculture to do two things: (1) issue Section 4c notices to begin cancellation proceedings for all economic poisons that contain DDT; (2) suspend all DDT registrations immediately and for the duration of § 4c cancellation proceedings. Agriculture granted partial relief with regard to the Section 4c notices by issuing such a notice for four uses, but denied the relief sought for all other uses. Agriculture denied all relief as to suspension, refusing to suspend DDT or any use thereof.

Respondents' denial of Petitioners' request is embodied in an order of December 11, 1969, which takes the form of a letter. This letter incorporates by reference other documents of which the most important are the Section 4c notice regarding the four uses and the Federal Register

Notice for all other uses. (App. 34-45; see pp. 6-7, *supra*.) These documents together embody Respondents' finding and decision, and refer to the evidence upon which they rely. They deny the relief Petitioners seek. Indeed, Respondents admit (Motion to Reconsider, p. 5, note 4) that they have made a decision not to suspend.

Respondents' order denying the relief sought is a final order which is subject to review by this Court because Petitioners have no further steps they can take in the administrative process. Denial of review will leave Petitioners to await the whim of the Respondents who, in their view, will have no legal obligation to advance the matter to another stage.

The fact that this final order does not come at the end of a Section 4c proceeding is of no consequence. Section 4d of FIFRA provides for review "[in] case of actual controversy as to the validity of any order." The Administrative Procedure Act, 5 U.S.C. 551(b), defines "order" as:

"...the whole or a part of a final disposition, whether affirmative, negative, injunctive, or declaratory in form, of an agency in a matter other than rule-making but including licensing."

Respondents' order makes a final disposition of Petitioners' requests.

In their motion papers, Respondents seem to raise four issues with regard to their order: (1) that the order does not come at the end of a Section 4c proceeding; (2) that the order is not based on a record that would be developed by the end of a Section 4c proceeding; (3) that Section 4c proceedings are underway for four uses; and (4) that the order involves, in part, a letter.

A. Respondents' Order Is a Final Reviewable Order Even Though It Does Not Come at the End of Section 4c Proceedings

The requirement of "finality" is to be interpreted in "a pragmatic way." *Abbott Laboratories v. Gardner*, 387 U.S. 136, 149 (1967). "Whether or not the statutory requirements of finality are satisfied in any given case depends . . . upon a realistic appraisal of the consequences of such action." *Isbrandtsen Co. v. United States*, 93 App. D.C. 293, 211 F.2d 51, 55 (1954). Of key importance is the principle stated in *Cities Service Gas Co. v. F.P.C.*, 255 F.2d 860, 863 (10th Cir. 1956), that:

"An order of an administrative body is reviewable when action taken in advance of hearings or adjudication result in setting legal consequences."<sup>45</sup>

It is of no consequence that an order is issued prior to the end of the proceedings.<sup>46</sup> Courts of Appeals may review final orders which do not come at the end of formal proceedings, but which determine legal rights at an earlier stage. In *Cities Service Gas Company v. F.P.C.*, *supra*, *Trailways of New England, Inc. v. C.A.B.*, 412 F.2d 926 (1st Cir. 1969), and *Isbrandtsen Co. v. United States*, *supra*, the courts reviewed as a final order the failure of agencies to suspend rate schedules prior to hearing. Also see *Trans-Pacific Freight Conference of Japan v. F.M.B.*, 302 F.2d 875 (D.C. Cir. 1962) (order to a shipping conference to cease collecting fines pending final decision held a final order and was reviewed by the Court of Appeals); *Phillips Petroleum Co. v. F.P.C.*, 227 F.2d 470 (10th Cir. 1955), *cert. denied*, 350 U.S. 1005 (1955) (order maintaining the status quo by suspending a rate schedule pending investigation and hearing reviewed by the Court of Appeals); and *Algonquin Gas Transmission Company v. F.P.C.*, 201 F.2d

<sup>45</sup> See *Columbia Broadcasting System v. United States*, 316 U.S. 407, 425.

<sup>46</sup> *Isbrandtsen Co. v. United States*, *supra*, at 55.

334 (1st Cir. 1953) (denial of application for a temporary emergency permit during proceedings reviewed). In the words of the Tenth Circuit:

"The orders sought to be reviewed here do not deal with the merits of the proceedings before the Commission in the sense that they were entered upon evidence concerning the reasonableness of the rates. They do not purport to finally determine Phillips wholesale rates. That matter is left to a conventional hearing in these proceedings. But the orders do purport to establish with finality the wholesale rates which Phillips was authorized to charge Michigan on June 7, 1954 and thereafter until changed by order of the Commission pursuant to hearing." *Phillips Petroleum Co. v. F.P.C.*, 227 F.2d 470 at 475.

Despite the fact that the order was not the final rate order, the Court of Appeals granted review.

While it does not follow a formal Section 4c proceeding, it is clear that the order denying Petitioners' requests is final except for the four uses.<sup>47</sup> At the end of Section 4c

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<sup>47</sup> Petitioners also note that neither the language of Section 4d of FIFRA nor anything in its legislative history prohibits review of such a final order. In this regard, Section 4d of FIFRA should be read together with the Administrative Procedure Act, under which a right to review must be presumed. *Abbott Laboratories v. Gardner*, 387 U.S. 136 at 140. Section 10b of the APA, 5 U.S.C. § 703, provides that "the form of proceeding for judicial review is the special statutory review proceeding relevant to the subject matter in a court specified by statute or, in the absence or inadequacy thereof, any applicable form of legal action . . . in a court of competent jurisdiction." Section 4d of FIFRA provides such a special statutory review procedure and is adequate.

The alternative is a bifurcation of review in which some FIFRA final orders are reviewed in the Court of Appeals and others in District Courts. The Supreme Court has rejected this approach in another area. *Foti v. Immigration and Naturalization Service*, 375 U.S. 217 (1963) (also see Jaffe, *Judicial Control of Administrative Action* 422, where bifurcation of review is criticized). The Court noted in *Foti* that the special Court of Appeals review procedure involved was added

proceedings for the four uses, presumably all that can be reviewed is a decision regarding those uses. There is no FIFRA proceeding in progress for cancellation of other DDT uses or suspension of DDT.

**B. Respondents' Order Is a Final Reviewable Order Even Though It Is Not Based on a Record Developed During a Section 4c Proceeding**

Since a final order need not necessarily come at the end of a formal administrative proceeding, it follows that it need not necessarily be based on a record developed during such proceeding. In fact, the cases cited above on finality (p. 33, *supra*) all involved situations where there was no record developed from a formal hearing. (See the quote from Phillips Petroleum at p. 34, *supra*.) There will obviously never be the kind of record in this cause which Respondents insist is needed for review if review is not available now. Indeed, there are no proceedings underway that would create such a record.

In the case of suspension, it is difficult to conceive of the kind of record Respondents insist on. Suspension is designed as a remedy which is operative while such a record is being made. After such a record is made and acted on, the time for suspension is past.

In fact, of course, there is an adequate record (pp. 4-6, 7-8, *supra*). It consists of the Petition, the related submissions, the Mrak Report and Respondents' Order. (App. 1-45). Nothing additional is needed for review of the decision and order before the Court. The evidence which was before Respondents was sufficient to compel the determination

to the Immigration and Nationality Act because of Congressional dissatisfaction with the legal delays in deportation cases, 375 U.S. at 225, 84 S. Ct. at 312. This echoes the situation with regard to the 1964 amendments to FIFRA which were added because of Congressional dissatisfaction with the Court's difficulties in getting hazardous pesticides off the market (see pp. 15-18, 24, *supra*).

and findings that DDT is causing harm to man, animals and the environment and that it is an imminent hazard to the public.<sup>48</sup>

**C. The Fact That Respondents Have Initiated Section 4c Proceedings For Only Four Uses of DDT Supports Petitioners' Contention That There Is a Final Order**

As discussed earlier, Agriculture has issued Section 4c notices for four uses—but only four uses. This means, of course, that the Section 4c proceedings in progress only relate to the four uses and will result in a decision that only affects those four uses. Conversely, it means there are not proceedings underway for all other uses. Petitioners are not seeking review at this time of the cancellation of the four uses, but only of the decision not to issue Section 4c notices and inaugurate administrative proceedings for other uses and of the decision not to suspend any use at all.

Agriculture's statement in their Motion to Reconsider (p. 2, note 2) that administrative procedures are underway, citing the procedure for the four uses, is perhaps intended to suggest that this cause is not ripe for review. The main purposes of the ripeness doctrine is to prevent the courts from making decisions in the abstract, and more importantly, to protect agencies from interference while they are in the middle of proceedings. *Abbott Laboratories v. Gardner, supra*, at 148-49. However, in this case, except for the

<sup>48</sup>If, however, the Court believes the record is deficient, we note that Section 4d provides in part:

"If application is made to the court for leave to adduce additional evidence, the court may order such additional evidence to be taken before the Secretary, and to be adduced upon the hearing in such manner and upon such terms and conditions as to the court may seem proper, if such evidence is material and there were reasonable grounds for failure to adduce such evidence in the proceedings below."

This provision obviously gives the Court all the authority it needs to deal with any deficiency.



four uses, there are no FIFRA proceedings with which the Court can interfere and Petitioners bring before the court a concrete problem for which there are specific remedies. The denial of the request for suspension and the request to issue Section 4c notices for all other uses of DDT is ripe for review.

**D. The Fact That Respondents' Order Was In  
Part In Letter Form Is Irrelevant to Final  
Order Question**

The fact that Respondents' order was in part in letter form is irrelevant to the final order question. The form of an order or its label does not determine whether it is an order. *Isbrandtsen v. United States*, *supra*, at 55. A telegram, *Phillips Petroleum Co. v. F.P.C.*, *supra*, at 474, or a letter, *United States v. Bass*, 215 F.2d 9 (8th Cir. 1954), can serve as an order, even if the Court finds it "obscure" and "ambiguous." *Schenley Industries, Inc. v. Fowler*, 275 F. Supp. 356 (D.C. D.C. 1967).

**CONCLUSION**

For all the reasons stated herein, Petitioners respectfully request that this Court grant the following relief:

- (a) that the Order of December 11, 1969, in response to the Petition of October 31, 1969, be set aside;
- (b) that the Respondents be ordered to follow statutory procedures, issuing Section 4c notices to commence the procedures by which the registrations of all economic poisons that contain DDT could be cancelled; and

(c) that the Respondents be ordered to immediately suspend the registrations of all economic poisons that contain DDT during Section 4c proceedings.

Respectfully submitted,

JAMES W. MOORMAN

CHARLES R. HALPERN

2008 Hillyer Place, N.W.  
Washington, D.C. 20009

*Attorneys for*  
Environmental Defense  
Fund, Incorporated,  
Sierra Club,  
West Michigan Environ-  
mental Action Council,  
National Audubon Society, and  
Izaak Walton League of America

EDWARD BERLIN

Berlin, Roisman and Kessler  
1910 N Street, N.W.  
Washington, D.C. 20036

*Attorney for*  
Environmental Defense  
Fund, Incorporated

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ADDENDUM

[219]

SECTIONS 2-4, FEDERAL INSECTICIDE, FUN-  
GIDE, AND RODENTICIDE ACT: 7 U.S.C.  
SECS. 135-135b, 64 STAT 163 AS AMENDED

DEFINITIONS

Sec. 2. For the purposes of this Act—

- a. The term "economic poison" means (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the Secretary shall declare to be a pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant.
- b. The term "device" means any instrument or contrivance intended for trapping, destroying, repelling, or mitigating insects or rodents or destroying, repelling, or mitigating fungi, nematodes, or such other pests as may be designated by the Secretary, but not including equipment used for the application of economic poisons when sold separately therefrom.
- c. The term "insecticide" means any substance or mixture of substances intended for preventing, destroying, repelling or mitigating any insects which may be present in any environment whatsoever.
- d. The term "fungicide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any fungi.
- e. The term "rodenticide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating rodents or any other vertebrate animal which the Secretary shall declare to be a pest.

## 2 Add.

f. The term "herbicide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any weed.

g. The term "nematocide" means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating nematodes.

h. The term "plant regulator" means any substance or mixture of substances, intended through physiological action, for accelerating or retarding the rate of growth or rate of maturation, or for otherwise altering the behavior of ornamental or crop plants or the produce thereof, but shall not include substances to the extent that they are intended as plant nutrients, trace elements, nutritional chemicals, plant inoculants, and soil amendments.

i. The term "defoliant" means any substance or mixture of substances intended for causing the leaves or foliage to drop from a plant, with or without causing abscission.

j. The term "desiccant" means any substance or mixture of substances intended for artificially accelerating the drying of plant tissue.

k. The term "nematode" means invertebrate animals of the phylum nemathelminthes and class nematoda, that is, unsegmented round worms with elongated, fusiform, or sac-like bodies covered with cuticle, and inhabiting soil, water, plant or plant parts; may also be called nemas or eelworms.

l. The term "weed" means any plant which grows where not wanted.

m. The term "insect" means any of the numerous small invertebrate animals generally having the body more or less obviously segmented, for the most part, belonging to the class insecta, comprising six-legged, usually winged forms, as, for example, beetles, bugs, bees, flies, and to other allied classes of arthropods whose members are wingless and usually have more than six legs, as, for example, spiders, mites, ticks, centipedes, and wood lice.

### 3 Add.

n. The term "fungi" means all non-chlorophyll-bearing thallophytes (that is, all non-chlorophyll-bearing plants of a lower order than mosses and liverworts), as, for example, rusts, smuts, mildews, molds, yeasts, and bacteria, except those on or in living man or other animals.

o. The term "ingredient statement" means either—

(1) a statement of the name and percentage of each active ingredient, together with the total percentage of the inert ingredients, in the economic poison; or

(2) a statement of the name of each active ingredient, together with the name of each and total percentage of the inert ingredients, if any there be, in the economic poison (except option 1 shall apply if the preparation is highly toxic to man, determined as provided in section 6 of this Act); and, in addition to (1) or (2) in case the economic arsenic in any form, a statement of the percentages of total and water soluble arsenic, each calculated as elemental arsenic.

p. The term "active ingredient" means—

(1) in the case of an economic poison other than a plant regulator, defoliant or desiccant, an ingredient which will prevent, destroy, repel, or mitigate insects, nematodes, fungi, rodents, weeds, or other pests;

(2) in the case of a plant regulator, an ingredient which, through physiological action, will accelerate or retard the rate of growth or rate of maturation or otherwise alter the behavior of ornamental or crop plants or the produce thereof;

(3) in the case of a defoliant, an ingredient which will cause the leaves or foliage to drop from a plant;

(4) in the case of a desiccant, an ingredient which will artificially accelerate the drying of plant tissue.

q. The term "inert ingredient" means an ingredient which is not active.

r. The term "antidote" means a practical immediate treatment in case of poisoning and includes first-aid treatment.

#### 4 Add.

s. The term "person" means any individual, partnership, association, corporation or any organized group of persons whether incorporated or not.

t. The term "Territory" means any Territory or possession of the United States, excluding the Canal Zone.

u. The term "Secretary" means the Secretary of Agriculture.

v. The term "registrant" means the person registering any economic poison pursuant to the provisions of this Act.

w. The term "label" means the written, printed, or graphic matter on, or attached to, the economic poison or device or the immediate container thereof, and the outside container or wrapper of the retail package, if any there be, of the economic poison or device.

x. The term "labeling" means all labels and other written, printed, or graphic matter—

(1) upon the economic poison or device or any of its containers or wrappers;

(2) accompanying the economic poison or device at any time;

(3) to which reference is made on the label or in literature accompanying the economic poison or device, except to current official publications of the United States Department of Agriculture and Interior, the United States Public Health Service, State experiment stations, State agricultural colleges, and other similar Federal or State institutions or agencies authorized by law to conduct research in the field of economic poisons.

y. The term "adulterated" shall apply to any economic poison if its strength or purity falls below the professed standard of quality as expressed on its labeling or under which it is sold, or if any substance has been substituted wholly or in part for the article, or if any valuable constituent of the article has been wholly or in part abstracted.

z. The term "misbranded" shall apply

5 Add.

(1) to any economic poison or device if its labeling bears any statement, design, or graphic representation relative thereto or to its ingredients which is false or misleading in any particular;

(2) to any economic poison—

(a) if it is an imitation of or is offered for sale under the name of another economic poison:

(b) if its labeling bears any reference to registration under this Act other than the registration number assigned to the economic poison:

(c) if the labeling accompanying it does not contain directions for use which are necessary and if complied with adequate for the protection of the public:

(d) if the label does not contain a warning or caution statement which may be necessary and if complied with adequate to prevent injury to living man and other vertebrate animals, vegetation, and useful invertebrate animals:

(e) if the label does not bear an ingredient statement on that part of the immediate container and on the outside container or wrapper, if there be one, through which the ingredient statement on the immediate container cannot be clearly read, of the retail package which is presented or displayed under customary conditions of purchase: Provided, That the Secretary may permit the ingredient statement to appear prominently on some other part of the container, if the size or form of the container makes it impracticable to place it on the part of the retail package which is presented or displayed under customary conditions of purchase:

(f) if any word, statement, or other information required by or under authority of this Act to appear on the label or labeling is not prominently placed thereon with such conspicuousness (as compared with other words, statements, designs, or graphic matter in the labeling) and in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use:



(g) if in the case of an insecticide, nematocide, fungicide, or herbicide when used as directed or in accordance with commonly recognized practice it shall be injurious to living man or other vertebrate animals, or vegetation, except weeds, to which it is applied, or to the person applying such economic poison: or

(h) if in the case of a plant regulator, defoliant, or desiccant when used as directed it shall be injurious to living man or other vertebrate animals, or vegetation to which it is applied, or to the person applying such economic poison: Provided, That physical or physiological effects on plants or parts thereof shall not be deemed to be injury, when this is the purpose for which the plant regulator, defoliant, or desiccant was applied, in accordance with the label claims and recommendations.

### PROHIBITED ACTS

Sec. 3.a. It shall be unlawful for any person to distribute, sell, or offer for sale in any Territory or in the District of Columbia, or to ship or deliver for shipment from any State, Territory, or the District of Columbia, to any other State, Territory, or the District of Columbia, or to any foreign country, or to receive in any State, Territory, or the District of Columbia from any other State, Territory, or the District of Columbia, or foreign country, and having so received, deliver or offer to deliver in the original unbroken package to any other person, any of the following:

(1) Any economic posion which is not registered pursuant to the provisions of section 4 of this Act, or any economic poison if any of the claims made for it or any of the directions for its use differ in substance from the representations made in connection with its registration, or if the composition of an economic poison differs from its composition as represented in connection with its registration: Provided, That in the discretion of the Secretary, a change in the labeling or formula of an economic poison may be

made within a registration period without requiring reregistration of the product.

(2) Any economic poison unless it is in the registrant's or the manufacturer's unbroken immediate container, and there is affixed to such container, and to the outside container or wrapper of the retail package, if there be one, through which the required information on the immediate container cannot be clearly read, a label bearing—

(a) the name and address of the manufacturer, registrant, or person for whom manufactured:

(b) the name, brand, or trade-mark under which said article is sold:

(c) the net weight or measure of the content: Provided, That the Secretary may permit reasonable variations: and

(d) when required by regulation of the Secretary to effectuate the purposes of this Act, the registration number assigned to the article under this Act.

(3) Any economic poison which contains any substance or substances in quantities highly toxic to man, determined as provided in section 6 of this Act, unless the label shall bear, in addition to any other matter required by this Act—

(a) the skull and crossbones;

(b) the word "poison" prominently (IN RED) on a background of distinctly contrasting color; and

(c) a statement of an antidote for the economic poison.

(4) The economic poisons commonly known as standard lead arsenate, basic lead arsenate, calcium arsenate, magnesium arsenate, zinc arsenate, zinc arsenite, sodium fluoride, sodium fluosilicate, and barium fluosilicate unless they have been distinctly colored or discolored as provided by regulations issued in accordance with this Act, or any other white powder economic poison which the Secretary, after investigation of and after public hearing on the necessity for such action for the protection of the public health and the feasibility of such coloration or

## 8 Add.

discoloration, shall, by regulation, require to be distinctly colored or discolored, unless it has been so colored or discolored: Provided, That the Secretary may exempt any economic poison to the extent that it is intended for a particular use or uses from the coloring or discoloring required or authorized by this section if he determines that such coloring or discoloring for such use or uses is not necessary for the protection of the public health.

(5) Any economic poison which is adulterated or misbranded or any device which is misbranded.

b. Notwithstanding any other provision of this Act, no article shall be deemed in violation of this Act when intended solely for export to any foreign country and prepared or packed according to the specifications or directions of the foreign purchaser.

c. It shall be unlawful—

(1) for any person to detach, alter, deface, or destroy, in whole or in part, any label or labeling provided for in this Act or the rules and regulations promulgated hereunder, or to add any substance to, or take any substance from, an economic poison in a manner that may defeat the purpose of this Act;

(2) for any manufacturer, distributor, dealer, carrier, or other person to refuse, upon a request in writing specifying the nature or kind of economic poison or device to which such request relates, to furnish to or permit any person designated by the Secretary to have access to and to copy such records as authorized by section 5 of this Act;

(3) for any person to give a guaranty or undertaking provided for in section 7 which is false in any particular, except that a person who receives and relies upon a guaranty authorized under section 7 may give a guaranty to the same effect, which guaranty shall contain in addition to his own name and address the name and address of the person residing in the United States from whom he received the guaranty or undertaking; and

(4) for any person to use for his own advantage or to reveal, other than to the Secretary, or officials or employees of the United States Department of Agriculture or other Federal agencies, or to the courts in response to a subpoena, or to physicians, and in emergencies to pharmacists and and other qualified persons, for use in the preparation of antidotes, in accordance with such directions as the Secretary may prescribe, any information relative to formulas of products acquired by authority of section 4 of this Act.

### REGISTRATION

Sec. 4.a. Every economic poison which is distributed, sold, or offered for sale in any Territory or the District of Columbia, or which is shipped or delivered for shipment from any State, Territory, or the District of Columbia to any other State, Territory, or the District of Columbia, or which is received from any foreign country shall be registered with the Secretary: Provided, That products which have the same formula, are manufactured by the same person, the labeling of which contains the same claims, and the labels of which bear a designation identifying the product as the same economic poison may be registered as a single economic poison; and additional names and labels shall be added by supplement statements: the applicant for registration shall file with the Secretary a statement including—

(1) the name and address of the registrant and the name and address of the person whose name will appear on the label, if other than the registrant;

(2) the name of the economic poison;

(3) a complete copy of the labeling accompanying the economic poison and a statement of all claims to be made for it, including the directions for use; and

(4) if requested by the Secretary, a full description of the tests made and the results thereof upon which the claims are based

b. The Secretary, whenever he deems it necessary for the effective administration of this Act, may require the submission of the complete formula of the economic poison. If it appears to the Secretary that the composition of the articles is such as to warrant the proposed claims for it and if the article and its labeling and other material required to be submitted comply with the requirements of section 3 of this Act, he shall register it.

c. If it does not appear to the Secretary that the article is such as to warrant the proposed claims for it or if the article and its labeling and other material required to be submitted do not comply with the provisions of this Act, he shall notify the applicant for registration of the manner in which the article, labeling or other material required to be submitted fail to comply with the Act so as to afford the applicant for registration an opportunity to make the corrections necessary. If, upon receipt of such notice, the applicant for registration does not make the corrections, the Secretary shall refuse to register the article. The Secretary, in accordance with the procedures specified herein, may suspend or cancel the registration of an economic poison whenever it does not appear that the article or its labeling or other material required to be submitted complies with the provisions of this Act. Whenever, the Secretary refuses registration of an economic poison or determines that registration of an economic poison should be cancelled, he shall notify the applicant for registration or the registrant of his action and the reasons therefor. Whenever an application for registration is refused, the applicant, within thirty days after service of notice of such refusal, may file a petition requesting that the matter be referred to an advisory committee or file objections and request a public hearing in accordance with this section. A cancellation of registration shall be effective thirty days after service of the foregoing notice unless within such time the registrant (1) makes the necessary corrections; (2) files a petition requesting that the matter be referred to an advisory committee; or (3)

files objections and requests a public hearing. Each advisory committee shall be composed of experts, qualified in the subject matter and of adequately diversified professional background selected by the National Academy of Sciences and shall include one or more representatives from land-grant colleges. The size of the committee shall be determined by the Secretary. Members of an advisory committee shall receive as compensation for their services a reasonable per diem, which the Secretary shall by rules and regulations prescribe, for time actually spent in the work of the committee, and shall in addition be reimbursed for their necessary traveling and subsistence expenses while so serving away from their places of residence, all of which costs may be assessed against the petitioner, unless the committee shall recommend in favor of the petitioner or unless the matter was referred to the advisory committee by the Secretary. The members shall not be subject to any other provisions of law regarding the appointment and compensation of employees of the United States. The Secretary shall furnish the committee with adequate clerical and other assistance, and shall by rules and regulations prescribe the procedures to be followed by the committee. The Secretary shall forthwith submit to such committee the application for registration of the article and all relevant data before him. The petitioner, as well as representatives of the United States Department of Agriculture, shall have the right to consult with the advisory committee. As soon as practicable after any such submission, but not later than sixty days thereafter, unless extended by the Secretary for an additional sixty days, the committee shall, after independent study of the data submitted by the Secretary and all other pertinent information available to it, submit a report and recommendation to the Secretary as to the registration of the article, together with all underlying data and a statement of the reasons or basis for the recommendations. After due consideration of the views of the committee and all other data before him, the Secretary shall, within ninety days after receipt of the report and recommendations of the advisory

committee, make his determination and issue an order, with findings of fact, with respect to registration of the article and notify the applicant for registration or registrant. The applicant for registration, or registrant, may, within sixty days from the date of the order of the Secretary, file objections thereto and request a public hearing thereon. In the event a hearing is requested, the Secretary shall, after due notice, hold such public hearing for the purpose of receiving evidence relevant and material to the issues raised by such objections. Any report, recommendations underlying data, and reasons certified to the Secretary by an advisory committee shall be made a part of the record of the hearing, if relevant and material, subject to the provisions of section 7(c) of the Administrative Procedure Act (5 U.S.C. 1006(c)). The National Academy of Sciences shall designate a member of the advisory committee to appear and testify at any such hearing with respect to the report and recommendations of such committee upon request of the Secretary, the petitioner, or the officer conducting the hearing: *Provided*, That this shall not preclude any other member of the advisory committee from appearing and testifying at such hearing. As soon as practicable after completion of the hearing, but not later than ninety days, the Secretary shall evaluate the data and reports before him, act upon such objections and issue an order granting, denying, or cancelling the registration or requiring modification of the claims or the labeling. Such order shall be based only on substantial evidence of record of such hearing, including any report, recommendations, underlying data, and reason certified to the Secretary by an advisory committee, and shall set forth detailed findings of fact upon which the order is based. In connection with consideration of any registration or application for registration under this section, the Secretary may consult with any other Federal agency or with an advisory committee appointed as herein provided. Notwithstanding the provisions of section 3.c.(4), information relative to formulas of products ac-



quired by authority of this section may be revealed, when necessary under this section, to an advisory committee, or to any Federal agency consulted, or at a public hearing, or in findings of fact issued by the Secretary. All data submitted to an advisory committee

in support of a petition under this section shall be considered confidential by such advisory committee: *Provided*, That this provision shall not be construed as prohibiting the use of such data by the committee in connection with consultation with the petitioner or representatives of the United States Department of Agriculture, as provided for herein, and in connection with its report and recommendations to the Secretary. Notwithstanding any other provision of this section, the Secretary may, when he finds that such action is necessary to prevent an imminent hazard to the public, by order, suspend the registration of an economic poison immediately. In such case, he shall give the registrant prompt notice of such action and afford the registrant the opportunity to have the matter submitted to an advisory committee and for an expedited hearing under this section. Final order of the Secretary under this section shall be subject to judicial review, in accordance with the provisions of subsection d. In no event shall registration of an article be construed as a defense for the commission of any offense prohibited under section 3 of this Act.

d. In a case of actual controversy as to the validity of any order under this section, any person who will be adversely affected by such order may obtain judicial review by filing in the United States court of appeals for the circuit wherein such person resides or has his principal place of business, or in the United States Court of Appeals for the District of Columbia Circuit, within sixty days after the entry of such order, a petition praying that the order be set aside in whole or in part. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary, or any officer designated by him for that purpose, and thereupon the Secretary shall file in the court the record of the proceedings on which he based his order, as pro-

vided in section 2112 of title 28, United States Code. Upon the filing of such petition the court shall have exclusive jurisdiction to affirm or set aside the order complained of in whole or in part. The findings of the Secretary with respect to questions of fact shall be sustained if supported by substantial evidence when

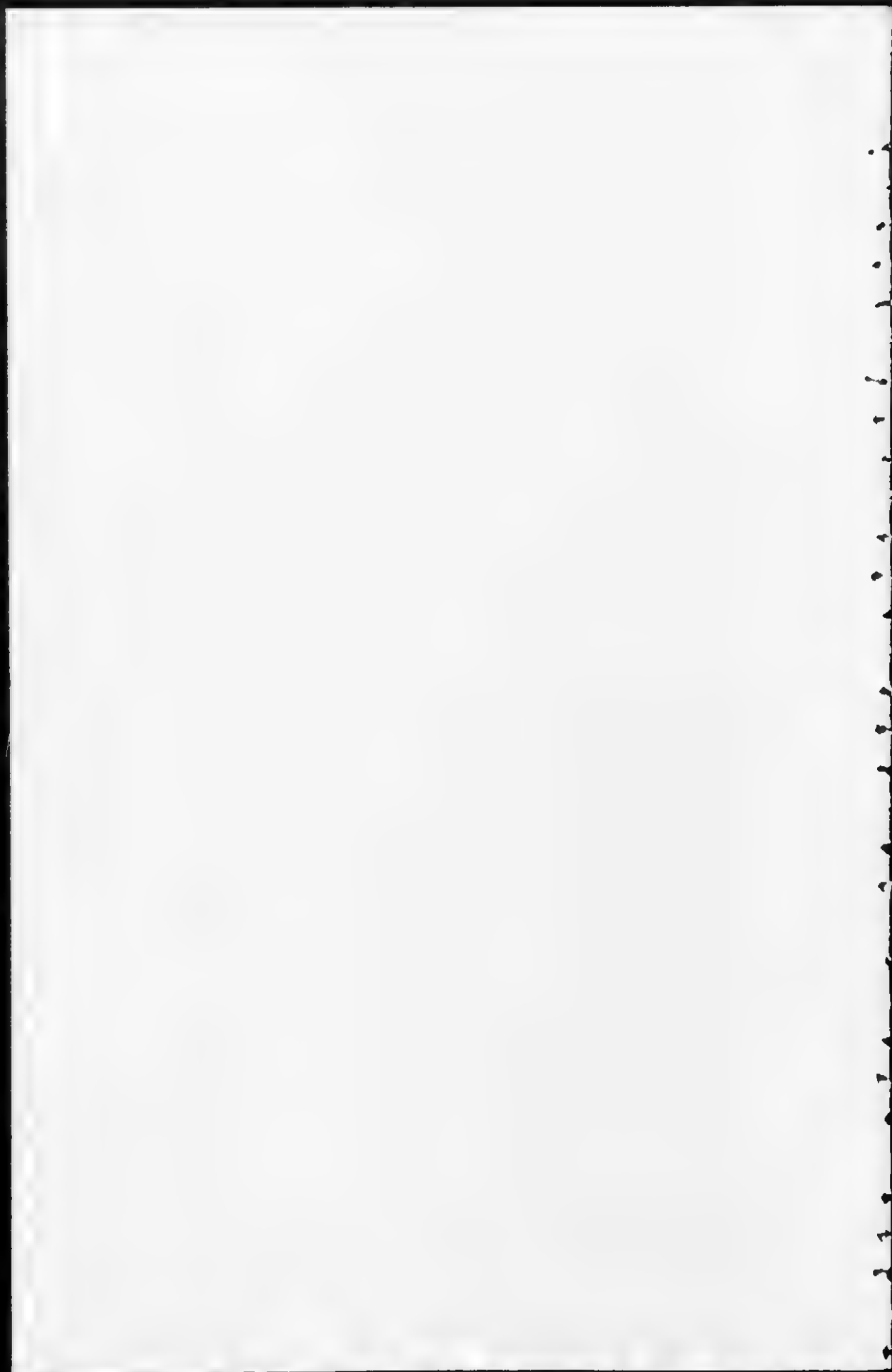
considered on the record as a whole, including any report and recommendation of an advisory committee. If application is made to the court for leave to adduce additional evidence, the court may order such additional evidence to be taken before the Secretary, and to be adduced upon the hearing in such manner and upon such terms and conditions as to the court may seem proper, if such evidence is material and there were reasonable grounds for failure to adduce such evidence in the proceedings below. The Secretary may modify his findings as to the facts and order by reason of the additional evidence so taken, and shall file with the court such modified findings and order. The judgment of the court affirming or setting aside, in whole or in part, any order under this section shall be final, subject to review by the Supreme Court of the United States upon certiorari or certification as provided in section 1254 of title 18 of the United States Code. The commencement of proceedings under this section shall not, unless specifically ordered by the court to the contrary, operate as a stay of an order. The court shall advance on the docket and expedite the disposition of all causes filed therein pursuant to this section.

e. Notwithstanding any other provisions of this Act, registration is not required in the case of an economic poison shipped from one plant to another plant operated by the same person and used solely at such plant as a constituent part to make an economic poison which is registered under this Act.

f. The Secretary is authorized to cancel the registration of any economic poison at the end of a period of five years following the registration of such economic poison or at the

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end of any five-year period thereafter, unless the registrant, prior to the expiration of each such five-year period, requests in accordance with regulations issued by the Secretary that such registration be continued in effect.



1 App.

Before the  
UNITED STATES DEPARTMENT OF AGRICULTURE

Environmental Defense Fund.  
Incorporated,  
Sierra Club,  
West Michigan Environmental  
Action Council, and  
National Audubon Society.  
Petitioners

TO: Honorable Clifford M. Hardin,  
Secretary of Agriculture

**PETITION REQUESTING THE SUSPENSION AND  
CANCELLATION OF REGISTRATION OF  
ECONOMIC POISONS CONTAINING DDT**

Petitioners request the Secretary of Agriculture to exercise his authority under the Federal Insecticide, Fungicide, and Rodenticide Act, 61 Stat. 163, as amended, 7 U.S.C. §§ 135-135k, to take immediate action to ban the use of DDT. Scientific evidence which has been accumulating at an accelerating rate clearly establishes that DDT is causing irreparable damage to the environment, and present scientific information establishes that DDT is a cancer-causing agent. Many other jurisdictions, in this country and abroad, have banned or severely restricted the uses of DDT. The Federal Government, charged with responsibility for protecting the health and welfare of its citizens and the protection of the nation's natural resources, must take appropriate action to stop the use of DDT. The Department of Agriculture has the power to suspend the registration of DDT and economic poisons containing DDT. The Department should exercise that authority at once.

**I. PETITIONERS**

[2] Petitioner Environmental Defense Fund, Incorporated (hereinafter "EDF"), is a non-profit, tax-exempt membership corporation organized under the laws of the State of New York. EDF is made up of scientists and other citizens

dedicated to the protection of man's environment, employing legal action where necessary. EDF has, through litigation, sought to protect the environment from various forms of pollution. Its Scientists Advisory Committee, with more than 200 members, including some of the world's foremost environmental scientists, assures that positions taken are thoroughly supported by scientific evidence. An extensive bibliography on DDT has been compiled by EDF. The articles on DDT which are cited in this petition are listed in Appendix A, attached hereto.<sup>1</sup> In its activities, EDF does not concern itself with the pecuniary interests of individuals; rather, it seeks to assure the preservation or restoration of environmental quality on behalf of the general public.

Petitioner Sierra Club is a non-profit membership corporation organized under the laws of the State of California with membership of 80,000. The Sierra Club has been in existence since 1892. Among its stated purposes is the preservation of scenic resources, forests, waters, wildlife and wilderness. In furtherance of its purposes, the Sierra Club engages in many educational activities, including an extensive publishing program and wilderness [3] outing program. In addition, the Sierra Club has participated in several legal actions to preserve the environment and maintains staff offices and membership chapters in all regions of the country.

Petitioner National Audubon Society (hereinafter "Audubon") is a non-profit membership corporation organized under the laws of the State of New York. Audubon has as its purposes the protection of wildlife and the natural environment, and the education of man regarding his relationship with and his place within the natural environment as an ecological system. Audubon has over 80,000 members and a history of 65 years devoted to these pur-

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<sup>1</sup>Also attached to the copy of the petition filed with the Secretary is a copy of the entire EDF bibliography, with reprints of the articles which are of special relevance.

poses. Audubon owns and operates 40 wildlife refuges, five nature interpretation centers and three adult ecological summer camps, and maintains a lecture program that reaches 200 cities annually. Audubon supports important research on endangered species and publishes papers on ecological research.

Petitioner West Michigan Environmental Action Council (hereinafter "the Environmental Action Council") is an unincorporated association. Its membership consists of 25 civic organizations and 300 individual members, primarily in West Michigan. Among the Environmental Action Council's stated purposes is assisting and coordinating the efforts of individuals and organizations to protect and restore the quality of the environment and to take necessary and appropriate action in furtherance thereof, including the dissemination of information through newsletters, lectures, seminars, participation in official hearings, and preparing and promoting model legislation.

#### [4] II. DEFINITIONS

"DDT," sometimes called dichlorodiphenyltrichloroethane, is a mixture of substances which has as its major ingredient the chemical compound 1,1,1-trichloro-2,2-bis-(*p*-chlorophenyl)ethane. DDT is widely used, in a variety of economic poisons, as a pesticide.

"DDT residues" include DDT; DDE, 1,1-dichloro-2,2-bis (*p*-chlorophenyl)ethylene; DDD, also known as TDE, 1,1-dichloro-2, 2-bis (*p*-chlorophenyl)ethane; and several other closely related chemical compounds derived from DDT by conversion processes within the environment.



### III. OTHER RELEVANT PROCEEDINGS

#### A. Petition to the Secretary of Health, Education and Welfare Requesting Repeal of Tolerances for DDT

On October 7, 1969, a petition was filed by six individuals and EDF with the Secretary of Health, Education and Welfare requesting the repeal of the tolerances for DDT on raw agricultural commodities. The petition, a copy of which is attached hereto as Appendix B, was based upon evidence that DDT is a carcinogenic or cancer-causing agent. (See, *infra*, pp.16-17.) Five of the individual petitioners therein are nursing mothers or are expecting to give birth in the very near future. The petition has not been acted upon as of this date.

On this day, said six individuals and EDF have requested the Secretary of Health, Education and Welfare immediately to repeal the existing tolerances for DDT on raw agricultural commodities and to set such tolerances at zero. In addition, Secretary Finch has been requested [5] to take all further steps to protect the health and welfare of the nation by banning the use of DDT on the ground that it is a carcinogen or cancer-causing agent. A copy of this petition was attached to the request addressed to the Secretary of Health, Education and Welfare. A copy of the request to the Secretary of Health, Education and Welfare is attached to this petition as Appendix C.

#### B. Requests for Information on DDT from the Department of Agriculture

The Petitioners have made diligent efforts to obtain from the Department of Agriculture documents relating to the registration of DDT and economic poisons containing DDT, and information in the Department's files relating to damage to the environment and to living man caused by DDT and such economic poisons.

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On September 18, 1969, a request for access to such information was made by Petitioner Environmental Action Council. On October 14, 1969, Petitioner Environmental Action Council renewed its request of September 18, 1969, and sought some related information. On October 24, 1969, Petitioners EDF and Sierra Club joined in the above request of Petitioner Environmental Action Council.

As of this date, the Department of Agriculture has failed to respond to any of these requests and has failed to give Petitioners Environmental Action Council, EDF, or Sierra Club access to any records of the Department of Agriculture. As a result, petitioners are unable to identify with particularity those economic poisons containing DDT that have been registered by the Department of Agriculture. As a further result, petitioners have been unable to determine the extent to which the matters presented herein have been considered by the Department of Agriculture.

### [6] C. Recent Actions by Administrative Agencies Against Carcinogenic Substances and Other Substances Posing Substantial Risks to Public Health

#### 1. *Cyclamates*

A recent precedent was set by Secretary of Health, Education and Welfare Robert Finch for immediate administrative action to protect the public where there is evidence that a substance on the market and in common use has carcinogenic qualities. On October 18, 1969, the Secretary acted to remove cyclamates from the market only five days after learning of scientific evidence of their carcinogenicity. His action was based on "recent experiments conducted on laboratory animals which disclosed the presence of malignant bladder tumors after these animals had been subjected to strong dosage levels of cyclamates for long periods." See statements of Secretary Robert H. Finch and Jesse L. Steinfeld, Deputy Assistant Secretary for Health and Scientific Affairs, October 18, 1969, attached hereto as Appendix D.

Secretary Finch emphasized "in the strongest possible terms that we have no evidence at this point that cyclamates have indeed caused cancer in humans." However, he stated that he felt it "imperative to follow a prudent course in all matters concerning public health." Appendix D, Statement of Secretary Finch, p. 1.

Deputy Assistant Secretary Steinfeld added:

"We can in no way at this time extrapolate the new data from rat experiments to human beings. Nevertheless, we in this Department—whether from a legal or from a scientific point of view—cannot afford to ignore any possibility of the rat data being applicable to the human population. As long as this possibility exists, a prudent concern for the health of the public [7] dictates that precautionary action be taken." Appendix D, Statement of Deputy Assistant Secretary Steinfeld, p. 6.<sup>2</sup>

## 2. The Herbicide 2,4,5-T

Dr. Lee A. DuBridge announced this week that the Federal Government will shortly initiate a coordinated series of actions to restrict the use of the herbicide 2,4,5-T. Among other actions, he stated that the Department of Agriculture would cancel the registration of the herbicide for use on food crops unless a basis can be found for establishing a safe legal tolerance before January 1, 1970. Office of Science and Technology, Executive Office of the President, Press Release, October 29, 1969.

<sup>2</sup>In an action in 1959, Secretary of Health, Education and Welfare Flemming made it clear that the strong policy against permitting cancer-causing agents in the market applies to pesticides as well as other products. By administrative interpretation, he ordered the seizure of all cranberries found to have residues of the pesticide aminotriazole, which had been found to cause cancer in mice. See CCH, Food, Drug and Cosmetic Law Rptr., 54,109.03. See *Bell v. Giddard*, 366 F.2d 177, 181 (7th Cir. 1966) (use of food additive barred where it caused cancer in animals notwithstanding small quantities ingested by man).

The Department of Agriculture's cancellation of the registration was based on a finding that the herbicide caused deformities in rats and mice. The data relied upon did not establish that the herbicide would have deleterious effects in man. The measure was explained as having a prophylactic purpose: to "assure safety of the public while further evidence is being sought."<sup>3</sup>

## D. Actions in Other Jurisdictions

The Michigan Agriculture Commission cancelled, effective June 27, 1969, the registrations of DDT except for control of bats, mice and head lice. Cancellation was based [8] on the facts that DDT is injurious to vertebrates and that there are safer alternative modes of pest control: thus DDT violated § 2z(2)(g) of the Michigan Economic Poisons Act. 12 Mich. Stat. Ann. § 352(2)(z)(2)(g). This standard is substantially identical to a parallel provision of the Federal Insecticide, Fungicide and Rodenticide Act. 61 Stat. 163, as amended, 7 U.S.C. §§ 135-135k (hereinafter "FIFRA").

On October 29, 1969, the Director of the California Department of Agriculture issued a regulation cancelling the registration of DDT for use in that State on 47 field crops.

On March 27, 1969, Sweden announced a moratorium on the use of DDT and several other chlorinated hydrocarbons.

In Canada, several of the provinces have taken action to ban DDT. Ontario, by Order-in-Council 3654-69, issued on September 24, 1969, banned all uses of DDT, effective January 1, 1970, with limited exceptions. Several other provinces have taken action regarding DDT or announced that action is impending. The Federal Government in Ottawa will shortly adopt stringent measures limiting the use of DDT.

<sup>3</sup>It was also reported that research evidence showed that the herbicide increased the incidence of cancer. *Los Angeles Times*, October 30, 1969, part 1, p. 11.

#### IV. APPLICABLE LAW: FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

##### A. Economic Poisons

The Secretary of Agriculture regulates economic poisons under FIFRA. "Economic poisons," as defined in FIFRA § 2a, 7 U.S.C. § 135(a), include the various mixtures which have DDT as their active ingredient and appear on the market under trade names.

##### [9] B. Registration Requirements

Section 4a of FIFRA, 7 U.S.C. § 135b(a), requires that:

"[E]very economic poison . . . which is shipped or delivered for shipment from any State, Territory or the District of Columbia to any other State, Territory or the District of Columbia, or which is received from any foreign country shall be registered with the Secretary [of Agriculture]."

##### C. Suspension of Imminent Hazards

Under § 4c of FIFRA, 7 U.S.C. § 135b(c), the Secretary of Agriculture has the duty to suspend by order the registration of an economic poison "when he finds that such action is necessary to prevent an imminent hazard to the public." See also 7 C.F.R. § 364.4(c), published at 34 Fed. Reg. 13822.

Either the fact that an economic poison is a cancer-causing agent or the fact that it is destructive of fish, wildlife and useful animals would be sufficient in itself to qualify it as an "imminent hazard to the public."

##### 1. *Carcinogenicity*

Proof that an economic poison is a carcinogen is a prime example of the kind of showing which establishes that it poses "an imminent hazard." The rapid response of HEW in banning cyclamates and the announced actions against

the herbicide 2,4,5-T by the Department of Health, Education and Welfare and the Department of Agriculture (see pp.6-7 *supra*) confirm the Federal policy of banning cancer-producing agents by immediate action.

Congress has evinced special concern about carcinogenic or cancer-causing agents, declaring in the Food Additives Amendment to the Federal Food, Drug, and Cosmetics Act, 21 U.S.C. § 348(c)(3)(a):

[10] "[N]o additive shall be deemed to be safe if it is found to induce cancer when ingested by man or animal, or it is found, after tests which are appropriate for the evaluation of the safety of food additives, to induce cancer in man or animal . . ."

In 1960, Congress passed the Color Additives Amendments to that Act and included a similar anticancer clause. 21 U.S.C. § 376(b)(5)(B).

Arthur S. Flemming, the Secretary of Health, Education and Welfare at the time of the passage of the Color Additive Amendments, summarized the philosophy embodied in the anticancer provisions in testimony before the House Committee on Interstate and Foreign Commerce:

"The preponderance of scientific evidence clearly dictates our position: Our advocacy of the anti-cancer proviso in the proposed color additives amendment is based on the simple fact that *no one knows how to set a safe tolerance for substances in human foods when those substances are known to cause cancer when added to the diet of animals.* I should like to underline again one statement in particular which I read earlier from the summary of Dr. [G. Burroughs] Mider's review of the role of certain chemical and physical agents in relation to cancer. It is this:

"'No one at this time can tell how much or how little of a carcinogen would be required to produce cancer in any human being, or how long it would take the cancer to develop.'

"This is why we have no hesitancy in advocating the inclusion of the anticancer clause.

"Unless and until there is a sound scientific basis for the establishment of tolerances for carcinogens, I believe the Government has a duty to make clear—in law as well as in administrative policy—that it will do everything possible to put persons in a position where they will not unnecessarily be adding residues of carcinogens to their diet." (See House Rpt. No. 1761, June 7, 1960, 2 U.S.C. Cong. & Admin. News, 86th Cong., 2d Sess., 2887 (1960)) (Emphasis supplied)

## *2. Damage to Fish, Wildlife and Useful Animals*

Congress intended to include the hazard of destruction of fish, wildlife and useful animals as an "imminent [11] hazard." The "imminent hazard" provision was added by the 1964 amendments to FIFRA (78 Stat. 190). The Senate Committee Report, in discussing the imminent hazard concept, stated that damage to fish and wildlife should be given due consideration. See Senate Report No. 57 on S. 1605, 88th Cong., 1st Sess. (1963).

## **D. Cancellation of Economic Poisons Not in Compliance with FIFRA**

In addition to immediate suspension of an economic poison as an imminent hazard, the Secretary of Agriculture has the duty to issue a notice of cancellation of the registration of an economic poison when it appears that the economic poison, its labeling, or other material do not comply with the provisions of FIFRA. FIFRA § 4c, 7 U.S.C. § 135b(c). Any economic poison which is "misbranded," as the term is defined, FIFRA § 2z(2), 7 U.S.C. § 135(2)(z)(2), is not in compliance with the Act. The Section 2z(2) definition of "misbranded" products states, in relevant part:

"The term 'misbranded' shall apply . . . (2) to any economic poison . . . (c) if the labeling accompanying it does not contain directions for use which



are necessary and if complied with adequate for the protection of the public; (d) if the label does not contain a warning or caution statement which may be necessary and if complied with adequate to prevent injury to living man and other vertebrate animals, vegetation, and useful invertebrate animals . . . (g) if in the case of an insecticide, nematocide, fungicide, or herbicide when used as directed or in accordance with commonly recognized practice, it shall be injurious to living man or other vertebrate animals, or vegetation, except weeds to which it is applied, or to the person applying such economic poison; . . ."

An economic poison is necessarily "misbranded" when it cannot be used in a manner which protects the public and prevents injury to man and animals. Where that is the case, a notice of cancellation should be issued.

[12] The regulations of the Department of Agriculture reflect the above standards in several provisions. See, *e.g.*, 7 C.F.R. §§ 362.6, 362.9, 362.10 (k), 362.105 (c), 362.105(h) 362.106 (f)(4)(v), 362.108 (c) (6), 362.121 (g).

### E. Burden of Proof

The suspension and cancellation procedures of § 4c of FIFRA, discussed above, were added to FIFRA by amendment in 1964 (78 Stat. 190).

The purpose of the 1964 amendment was to give the Secretary full authority to remove hazardous and unlawful economic poisons from the market and to shift the burden of proving their safety to the registrant. House Report No. 1125 on H.R. 9739, 88th Cong., 2d Sess., 64 U.S.C. Cong. & Admin. News, 2166-2167.



## V. THE DAMAGE CAUSED BY DDT TO MAN AND THE ENVIRONMENT

The Secretary must take account of the weight of scientific evidence which establishes that the continued use of DDT is inconsistent with the scheme of FIFRA. The Act presupposes that no economic poison will be registered, or where already registered that such registration will be suspended by the Secretary, if the economic poison poses an imminent hazard to the public or if it is injurious to man, animals or the environment. The hazards of DDT are now well documented and require immediate action.

In this section petitioners will describe the damage which DDT has caused to the environment and the threats it poses to human health. Because of the technical character of the issue and the numerous citations to scientific materials, petitioners have attached to this petition a list of leading [13] authorities. The numbered references in this section correspond to numbers in the list of authorities. See Appendix A.

The Affidavit of Charles F. Wurster, attached to this petition as Appendix E, also provides support for the propositions set out in this section. Dr. Wurster, the Chairman of the Scientists Advisory Committee of petitioner EDF, is a leading environmental scientist.

DDT, a pesticide which has been in common use since World War II, performed a useful function at a time when alternative pesticides were unavailable. Alternative pesticides and procedures that are of equal effectiveness but cause less damage are now available. (267, Appendix E, ¶ 17). The time has come for the Federal Government to act against the use of DDT. Because it is an imminent hazard to the environment and to human health, such action should be taken immediately.

DDT combines in a single molecule the properties of broad biological activity, chemical stability, mobility, and solubility, characteristics (139) that cause it to be accumu-

lated by living non-target organisms, thus presenting dangers that are unusual among major pollutants (268). DDT not only enters food chains from the inorganic environment, it is increasingly concentrated toward the top of food chains, thereby posing a particular threat to carnivores (90, 155, 156, 161, 208, 209, 214, 260).

Because DDT residues are mobile (4, 20, 21, 22, 41, 157, 181, 201), chemically stable (60, 137, 201), nearly insoluble in water (20) but quite soluble in lipid or fat-like materials (139), DDT cannot be used and released in the environment under any circumstances, whether or not in accord with any label or directions, without the eventual contamination [14] of food chains (86, 90, 106, 131, 155, 156, 161, 208, 209, 214, 252, 260), including human foods, and the tissues of non-target organisms, including man (50, 149, 223, 258).

The entire biosphere has, in fact, become contaminated with DDT residues, including such seemingly unlikely places as air (1, 2, 9, 157), rainwater (181, 205), birds living hundreds of miles at sea (155, 214), Arctic and Antarctic animals (71, 174, 182, 220, 225), and cosmetics, and human milk (148, 221). DDT residues are regular contaminants of human foods, including many foods never treated with the material, and contaminate the tissues of virtually all human beings (50, 149, 223, 258).

DDT residues retain their broad biological activity long enough to be hazardous to contaminated non-target organisms, most of which are far removed by both time and space from the original site of the DDT application. (Appendix E, ¶7).

The relationships between DDT residues and hazards to bird populations, by both direct mortality and reproductive failure, have been particularly well documented. DDT causes carnivorous birds, including birds of prey, sea birds, and many other species, to lay eggs with abnormally thin shells (88, 150, 211, 233). These eggs break prematurely, resulting in sharply reduced reproductive success (105).

Populations of these species have in many cases undergone catastrophic declines, in some cases approaching extinction (7, 87, 154, 214). The decline in eggshell thickness occurred shortly after the large scale introduction of DDT into the world environment in the late 1940's (88, 150). Controlled feeding experiments with DDT and its metabolites have established the causal relationship between DDT residues [15] in the environment, the production of eggs with abnormally thin shells, and greatly reduced reproductive success (218, 232, 256).

DDT causes direct mortality of large numbers of birds. This has been especially true where attempts were made to control Dutch elm disease with DDT, but has also occurred under many other circumstances (89, 191, 213, 236).

DDT inhibits reproduction in fish, with abnormal mortality of the fry following the contamination of the adult fish and their eggs. This has occurred in several freshwater situations, with mortalities of 100 percent of the fry in some instances (28, 47, 235). Controlled experiments confirmed that DDT residues were the causative agents (244, 245). Many fish from other areas, including commercially important fish from marine waters, show concentrations of DDT residues in their tissues that approach those that caused this abnormal fry mortality (8, 156, 224, 241). Important freshwater and marine fisheries are seriously threatened by present and anticipated future concentrations of DDT residues in the tissues of the fish. DDT also causes the direct mortality of large numbers of fish, a phenomenon that has occurred under a variety of circumstances (46, 62, 198).

DDT residues do great damage to useful invertebrates of many species. Insect communities are frequently disrupted by the killing of beneficial predatory and parasitic insects, thereby frequently aggravating the insect pest problem DDT was intended to control (100, 267). It kills pollinating insects. It damages various crustaceans such as crabs and shrimp (77, 117, 168, 253). Even the base of oceanic food chains, the phytoplankton, can have their photosynthetic

activity reduced by a few parts per billion of DDT in the water (215).

[16] By eliminating certain organisms, especially carnivorous organisms, from biotic communities, DDT residues are causing widespread ecological damage (208). Such ecosystem simplification contributes to population explosions of certain organisms lower in the food chain and normally controlled by the carnivores. Proliferation of herbivorous insect pests or herbivorous birds like blackbirds are examples of this phenomenon (267). The stability of ecosystems is thereby reduced by the disruptions caused by DDT.

DDT and its residues cause these serious environmental effects by virtue of the great variety of their biological activity within living systems. These residues are nerve toxins (49, 217), induce hydroxylating enzymes in the liver (42, 112, 145, 229), inhibit certain other enzymes, and interfere with the photosynthetic process (215). They also are known to induce estrogenic activity (17, 264).

DDT residues exhibit this broad range of biological activity within a great diversity of animals and even some plant species; their activity extends to all five classes of vertebrates—amphibians, reptiles, fish, birds, and mammals. With these non-target organisms serving as warning signals or monitors, showing the great and diverse biological activity of DDT within a broad range of animals, it is hardly surprising that DDT has now been shown to operate by yet another biological mechanism—it is a carcinogenic or cancer-causing agent. (Appendix E, ¶12.)

In a definitive study supported by the National Cancer Institute, DDT was added to the diet of mice and compared with both positive and negative [17] control groups of mice (238). The frequency of tumors of the liver, lungs and lymphoid organs was four times greater in mice fed DDT than those in the negative control group. The carcinogenicity was clearly established because DDT caused cancer of the same kind and at approximately the same frequency as did known cancer-causing agents (the positive controls) (238).

The National Cancer Institute study confirmed earlier evidence indicating the carcinogenicity of DDT. As early as 1947, a study by the Food and Drug Administration showed that when DDT was fed to rats there was an increased incidence of liver tumors (226). Similar results were obtained using rainbow trout, where DDT in the food of the fish caused the formation of hepatomas (231). Other experiments with mice carried through five generations showed that the DDT mice had a substantially higher incidence of leukemia and of tumors than the non-DDT mice (262).

In studies done at the University of Miami School of Medicine, human victims of terminal cancer were found to contain more than twice the concentration of DDT residues in their fat as did victims of accidental death (223, 258). The accident victims carried 9.7 parts per million in their fat, about average for Americans, while the cancer victims contained 20 to 25 parts per million.

Evidence that DDT causes cancer in human beings is not conclusive, but DDT is clearly carcinogenic in test animals. The evidence on DDT is similar to the evidence of the carcinogenic activity of the cyclamates. The Secretary of Health, Education and Welfare promptly withdrew cyclamates from the market on the basis of such evidence. The Secretary of Agriculture should do no less with DDT.

Alternative integrated control techniques, including the use of chemical, biological, and other pest management [18] procedures are available that are as effective as DDT (37, 65, 251, 267). Alternative techniques would not cause the injury to the environment nor pose the threat to human health described above if substituted for all of DDT's uses. (Appendix E, ¶17). DDT is a highly disruptive material in the environment and causes outbreaks of mites, aphids, and scale insects by killing their natural enemies (267). It has been stated by a leading authority in the field that DDT has no place in an integrated pest control system (267).

## VI. CONCLUSIONS

The overwhelming scientific evidence establishes that DDT is a cancer-causing agent, is injurious to animal, bird and fish populations, and is causing serious ecological damage. For these reasons, the continued use of DDT poses an imminent hazard to the public, threatening human health and environmental resources. Petitioners have long been concerned with the interrelationship of a wholesome environment and human welfare. Further introduction of DDT into the environment is entirely inconsistent with the values which the Secretary of Agriculture is bound to preserve.

Specifically, petitioners have shown that DDT does not comply with the Federal Insecticide, Fungicide, and Rodenticide Act in the following respects:

(1) DDT is an imminent hazard to the public under section 4c of FIFRA, 7 U.S.C. § 135b(c), and the registration statements of all economic poisons containing DDT should be immediately suspended.

(2) DDT does not comply with the provisions of section 2z(2)(d) of FIFRA, 7 U.S.C. § 135(2)(z)(2)(d) since it is causing serious, permanent and irreparable injury to [19] entire populations of non-target vertebrate and useful invertebrate animals. No warning or caution statement contained in any label is or would be adequate if complied with to prevent this injury. The injury is occurring under the commonly recognized practices for the use of DDT.

(3) DDT does not comply with Section 2z(2)(c) of FIFRA, 7 U.S.C. § 135(2)(z)(2)(c), for the reasons that it is causing serious, permanent and irreparable damage to the public in that it is causing injury specified above in the preceding paragraph and that it (a) is causing serious, permanent and irreparable damage to the fish and wildlife resources of the United States; (b) is causing serious, permanent and irreparable ecological damage; (c) is a carcinogen, and (d) is causing serious, permanent and irreparable

damage to large numbers of diverse non-target organisms essential or beneficial to the public. No directions contained in any written material would be adequate if complied with to prevent said damage. The damage is occurring under the commonly recognized practices for the use of DDT.

(4) DDT does not comply with Section 2(z)(2)(g) of FIFRA, 7 U.S.C. § 135(2)(z)(2)(g), since when used as directed or used in accordance with commonly recognized practice it is injurious to living man and other vertebrate animals to which it is applied and to persons applying such economic poison.

(5) Alternative integrated control techniques, including the use of chemical, biological, and other pest management procedures are available that are substantially as effective as DDT and that do not presently cause the injury and harm set forth above and would not cause such harm if substituted for substantially all of DDT's uses.

#### [20] VII. PRAYER FOR RELIEF

Petitioners request that the Secretary:

By order, immediately, (1) suspend the registration of all economic poisons that contain DDT; and (2) issue Notices of Cancellation for all registered economic poisons that contain DDT, affording petitioners an opportunity to participate fully in any administrative proceedings held follow-



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ing the issuance of notices of cancellation including the right to adduce evidence, to rebut and to cross-examine.

Respectfully submitted.

JAMES W. MOORMAN  
CHARLES R. HALPERN

1752 Swann Street, N.W.  
Washington, D. C. 20009

*Attorneys for Environmental  
Defense Fund, Sierra Club,  
West Michigan Environmental  
Action Council, and National  
Audubon Society*

EDWARD BERLIN  
Berlin, Roisman and Kessler  
1910 N Street, N.W.  
Washington, D. C. 20036

*Attorneys for Environmental  
Defense Fund*

October 31, 1969

Appendix A to Petition Requesting the Suspension  
and Cancellation of Registration of Economic  
Poisons Containing DDT

LIST OF AUTHORITIES

Reference numbers cited in Section V of this petition correspond to the numbers in the more extensive Bibliography, one copy of which was submitted to Secretary Hardin, entitled "A Bibliography on the Effects of DDT on Non-Target Organisms."

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Appendix E to Petition Requesting the Suspension  
and Cancellation of Registration of Economic  
Poisons Containing DDT

AFFIDAVIT

The undersigned, Charles F. Wurster, being duly sworn,  
deposes and says:

1. I presently reside at Oldfield, New York. My address is Department of Biological Sciences, State University of New York, Stony Brook, New York 11790.

2. I am a professional environmental scientist. My professional credentials, background and bibliography are attached to this Affidavit as Appendix A. [Not reprinted in this Appendix]

3. Whenever I use the term DDT herein I mean the mixture of substances commonly known as DDT, which stands for dichlorodiphenyltrichloroethane, and which has as its major ingredient the chemical compound 1,1,1-trichloro-2,2-bis(*p*-chlorophenyl)ethane. Whenever I use the term "DDT residues," I mean DDT as defined above, and DDE, 1,1-dichloro-2,2-bis(*p*-chlorophenyl) ethylene, and several other closely related chemical compounds derived from DDT by conversion processes within the environment.

4. DDT is a broad-spectrum, persistent chemical biocide with an extremely low water solubility, and a high solubility in lipids. Because of these properties and a variety of mechanisms that transport DDT, it leaves its original site of application, eventually contaminating the food chains and tissues of non-target organisms.

5. More than 100,000,000 pounds of DDT is manufactured and released into the environment each year. It is applied in a wide variety of pest control situations by many different techniques. Because DDT residues are mobile, chemically stable, slightly soluble in water, and quite soluble in lipid or fat-like materials, DDT cannot be used and released in the environment [2] under any circumstances, whether or not in accord with any label or directions, without the eventual contamination of food chains, includ-

ing human foods, and the tissues of non-target organisms, including man.

6. The entire biosphere has, in fact, become contaminated with DDT residues, including such seemingly unlikely places as air, rainwater, birds living hundreds of miles at sea, Arctic and Antarctic animals, cosmetics, and human milk. DDT residues are regular contaminants of human foods, including many foods never treated with the material, and they contaminate the tissues of essentially all human beings.

7. DDT residues retain their broad biological activity long enough to be hazardous to contaminated non-target organisms, most of which are far removed by both time and space from the original site of the DDT application.

8. DDT has long been known to be an extremely serious environmental hazard, although the extremity of the situation has become more obviously apparent in recent years. DDT causes carnivorous birds, including birds of prey, sea birds, and many other species, to lay eggs with abnormally thin shells. These eggs break prematurely, resulting in sharply reduced reproductive success. Populations of these species have in many cases undergone catastrophic declines, in some cases approaching extinction itself. Controlled experiments confirm that DDT residues were the causative agents. DDT also directly kills large numbers of birds.

9. DDT also inhibits reproduction in fish, with abnormal mortality of the fry following the contamination of the adult fish and their eggs. This has occurred in several freshwater situations, with mortalities of 100 percent of the fry in some [3] instances. Controlled experiments confirmed that DDT residues were the causative agents. Many fish from other areas, including commercially important fish from marine waters, show concentrations of DDT residues in their tissues that approach those that caused this abnormal fry mortality. I conclude that important freshwater and marine fisheries are seriously threatened by present and anticipated future concentrations of DDT residues in the tissues of the fish. DDT also directly kills large numbers of fish.

10. DDT residues do great damage to useful invertebrates of many species. Insect communities are frequently disrupted by the killing of beneficial predatory and parasitic insects, thereby frequently aggravating the insect pest problem DDT was intended to control. It kills pollinating insects. It also damages various crustaceans such as crabs and shrimp. Even the base of oceanic food chains, the phytoplankton, can have their photosynthetic activity reduced by a few parts per billion of DDT in the water.

11. By eliminating certain organisms, especially carnivorous organisms, from biotic communities, DDT residues are causing widespread ecological damage. Such ecosystem simplification contributes to population explosions of certain organisms lower in the food chain and normally controlled by the carnivores. Outbreaks of herbivorous insect pests or herbivorous birds like blackbirds are examples of this phenomenon. The stability of ecosystems is thereby reduced by the disruptions caused by DDT.

12. DDT and its residues cause these serious environmental effects by virtue of the great breadth of their biological activity within living systems. These residues are known to be estrogenic, to be inducers of hydroxylating enzymes in the [4] liver, to be inhibitors of certain other enzymes, and to interfere with the photosynthetic process. DDT residues exhibit this broad range of biological activity within a great diversity of animals, and even some plant species; their activity extends to all five classes of vertebrates—amphibians, reptiles, fish, birds, and mammals. With these non-target organisms serving as warning signals or monitors—with great and diverse biological activity occurring within a broad range of animals—it is hardly surprising that DDT has now been shown to operate by yet another mechanism—it is a carcinogenic or cancer-causing agent.

13. DDT causes cancer in test animals. While we do not have conclusive evidence that DDT causes cancer in human beings, DDT must be labelled carcinogenic.

14. In studies done at the University of Miami School of Medicine, human victims of terminal cancer were found to contain more than twice as much DDT residues in their fat as did victims of accidental death. The accident victims carried 9.7 parts per million, which is about average for Americans, while the cancer victims contained 20-25 parts per million in their fat.

### CONCLUSIONS

15. DDT is causing serious, permanent and irreparable injury to entire populations of non-target vertebrate and useful invertebrate animals. No warning or caution statement contained in any label would be adequate if complied with to prevent said injury. Said injury is occurring under the commonly recognized practices for the use of DDT.

16. DDT is causing serious, permanent and irreparable damage to the public in that it is causing the injury specified above and that it (a) is causing serious, permanent and irreparable damage to the fish and wildlife resources of the United [5] States; (b) is causing serious, permanent and irreparable ecological damage; (c) is a carcinogenic or cancer-causing agent; and (d) is causing serious, permanent and irreparable damage to large numbers of diverse non-target organisms essential or beneficial to the public. No directions contained in any written material would be adequate if complied with to prevent said damage. Said damage is occurring under the commonly recognized practices for the use of DDT.

17. Alternative integrated control techniques, including the use of chemical, biological, and other pest management procedures are available that are substantially as effective as DDT that do not presently cause the injury and harm set forth above and would not cause said harm if substituted for substantially all of DDT's uses.

18. My above-stated opinions are based upon my knowledge of the research of many scientists as communicated

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personally and by publication in recognized scientific journals, and, in part, upon my own research investigations.

For all the reasons set forth herein, DDT is an imminent hazard to the public and its use should be immediately suspended.

/s/ Charles F. Wurster

Subscribed and sworn to before me this 28th day of October, 1969.

/s/ Dorothy M. Kern  
Notary Public

My Commission Expires: 1/14/74



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DEPARTMENT OF AGRICULTURE  
Office of the Secretary  
Washington, D. C. 20250

November 10, 1969

Mr. James W. Moorman  
Center for Law and Social Policy  
1752 Swann Street, N.W.  
Washington, D. C. 20009

Dear Mr. Moorman:

This is in reply to your letter of October 31 enclosing a copy of "Petition Requesting the Suspension and Cancellation of Registration of Economic Poisons Containing DDT."

The Petition, along with the supporting documents, has been referred to the appropriate agency within the Department for consideration.

Sincerely,

/s/ Ned D. Bayley  
Director of Science & Education

DEPARTMENT OF AGRICULTURE  
Office of the Secretary  
Washington, D. C. 20250

December 11, 1969

Mr. James W. Moorman  
Center for Law and Social Policy  
1752 Swann Street, N.W.  
Washington, D. C. 20009

Dear Mr. Moorman:

This is in further reply to your letter of October 31, 1969, submitting a petition requesting the suspension and cancellation of registration of economic poisons containing DDT, filed on behalf of Environmental Defense Fund, Inc., Sierra Club, West Michigan Environmental Action Council and the National Audubon Society. This will also reply to your letter of November 7, 1969.

We have been concerned for some time over the potential hazards that may result from the presence of DDT and other persistent pesticides in the environment. It was because of our concern for the environment that the Department requested the National Academy of Sciences-National Research Council to study and provide a factual report on the effects of persistent pesticides on man, agriculture, and the environment. Their report has been completed, and, in general, it pointed to adequate protection to man's food and health under the present systems of controls, but recommended expanded research leading to the development of new pesticidal chemicals and techniques for using them, and the strengthening of the regulation and monitoring of persistent pesticides to provide long-range protection for wildlife and the overall environment.

In April 1969, Secretary Finch of the Department of Health, Education, and Welfare appointed a Commission to

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study pesticides and their relationship to environmental health. Recently Secretary Finch released the Commission's conclusions and its recommendations for actions to be taken.

As a result of the above two reports and other considerations that we have been reviewing, we have taken a number of steps to assure greater protection to the environment.

On October 23, 1969, the Department of Agriculture issued a policy on pesticides. A copy is enclosed for your information.

[2] On November 13, 1969, a directive was issued that listed special environmental considerations that must be applied to the registration of pesticides. The details were announced in the Press Release USDA 3508-69 of which a copy is enclosed for your additional information.

On November 20, 1969, our Pesticides Regulation Division began mailing a Notice to Manufacturers, Formulators, Distributors, and Registrants of Economic Poisons notifying them of the cancellation of registration of DDT products for certain uses. A copy of this PR Notice 69-17 is enclosed for your information.

In the November 25, 1969 (Vol. 34, No. 226), issue of the Federal Register was published a notice of action being taken to cancel the registration of the DDT uses in the aforementioned notice. Also, it served notice that the Department is considering cancellation of any other uses of DDT and affords interested persons an opportunity for a period of 90 days to submit their views and comments. A copy of the Federal Register publication is enclosed for your additional information.

We believe that these actions are responsive to your petition when reviewed in the light of the two studies by eminent scientists and other essential considerations.

Sincerely,

/s/ Ned D. Bayley

Director of Science & Education

4 Enclosures

UNITED STATES DEPARTMENT OF AGRICULTURE  
Office of the Secretary  
Washington, D. C. 20250

October 23, 1969

SECRETARY'S MEMORANDUM NO. 1666

*U.S.D.A. Policy on Pesticides*

It is the policy of the Department of Agriculture to practice and encourage the use of those means of effective pest control which provide the least potential hazard to man, his animals, wildlife, and the other components of the natural environment.

For the foreseeable future, pesticides will be necessary tools for the protection of the nation's food and fiber supplies, people, and their homes.

Where chemicals are required for pest control, patterns of use, methods of application and formulations which will most effectively limit the impact of the chemicals to the target organisms shall be used and recommended. In the use of these chemicals, the Department has a continuing concern for human health and well-being and for the protection of fish and wildlife, soil, air, and water from pesticide contamination.

In keeping with this concern, persistent pesticides will not be used in Department pest control programs when an effective, nonresidual method of control is available. When persistent pesticides are necessary to combat pests, they will be used in minimal effective amounts, applied precisely to the infested area, and at minimal effective frequencies.

Nonchemical methods of pest control, biological or cultural, will be used and recommended whenever such methods are available for the effective control or elimination of target pests. Integrated control systems utilizing

both chemical and nonchemical techniques will be used and recommended in the interest of maximum effectiveness and safety.

[2] In carrying out its responsibilities, the Department will continue to:

- Conduct and support cooperative research to find new, effective biological, cultural, and integrated pest control materials and methods;
- Seek effective, specific, nonpersistent pesticides and methods of application least hazardous to man and his environment;
- Require pesticide product labels which adequately inform all users of the composition and the proper permitted use of each formulation;
- Review and update all pesticide registrations, eliminating any uses not in conformity with current criteria of safety and efficacy;
- Cooperate with other public and private organizations and industry in the development and evaluation of pest control materials and methods, assessment of benefits and potential hazards in control operations, monitoring for pesticide residues, and dissemination of pesticide safety information.

All users of pesticides, whether in the home, garden, field, forest, or aquatic area or for public health and sanitary purposes, are strongly urged to heed label directions and exercise constant care in pesticide application, storage, and disposal for the protection of people, animals, and our total environment.

The Department commends this policy to all who use, recommend, or regulate pesticides.

/s/ Clifford M. Hardin  
Secretary of Agriculture

With this issuance, Secretary's Memorandum No. 1565, dated December 23, 1964, is hereby superseded.

UNITED STATES DEPARTMENT OF AGRICULTURE

Farkas DU 8-5208

McDavid DU 8-4026

Washington, Nov. 13, 1969

Hardin Calls for More Environmental Protection  
in Pesticides Registration:

Secretary of Agriculture Clifford M. Hardin today directed that protection of the environment from contamination by persistent pesticides receive greater emphasis in the registration of new pesticide products and review of those already registered by the Department of Agriculture.

The directive is concerned with those pesticides which will persist in the environment, beyond the current growing season for a crop or one year for non-crop uses. This would include DDT and many other chlorinated hydrocarbon chemicals which are generally the most persistent of the pesticides.

"This action will enable the Department of Agriculture to better discharge its responsibilities for the regulation of pesticide products in the public interest," the Secretary said. "It makes our registration requirements and procedures more responsive to the latest research findings on pesticide effects and related public concern over environmental pollution."

The instructions issued by Secretary Hardin directed that, in connection with pesticide registrations, particular consideration be given to the following, among other factors:

- the period of time and the conditions under which the product will persist in the environment.
- whether because of solubility and mobility the product will be likely to be moved out of the area of use, and what potential effects may be anticipated.
- whether the product is subject to transformation into other chemicals which might have adverse effects

upon the environment and through the environment on living man and useful vertebrate animals, useful vegetation, or useful invertebrate animals.

- [2] — whether there is a need for the product for the prevention or control of human disease and other essential uses for which no alternative is available.

Under the Federal Insecticide, Fungicide, and Rodenticide Act, the Secretary of Agriculture is responsible for the regulation of all pesticide products marketed in interstate commerce. The law requires that all such products be registered with USDA on the basis of scientifically proven effectiveness and safety to humans, crops, livestock, and wildlife when used as directed.

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USDA 3508-69



PR Notice 69-17

UNITED STATES DEPARTMENT OF AGRICULTURE  
Agricultural Research Service  
Pesticides Regulation Division  
Washington, D. C. 20250

November 20, 1969

NOTICE TO MANUFACTURERS, FORMULATORS,  
DISTRIBUTORS, AND REGISTRANTS OF  
ECONOMIC POISONS

Attention: Person responsible for Federal registration  
of economic poisons

CANCELLATION OF REGISTRATION OF DDT  
PRODUCTS FOR CERTAIN USES.

During the past 25 years DDT has been used extensively for the control of a variety of insect pests. In addition to widespread agricultural use it has been invaluable in the control of certain vectors of diseases. Its continued widespread use and relatively slow dissipation has resulted in contamination of the environment with low levels of DDT. Trace residues can often be detected in areas far removed from sites of application. This was recognized by the President's Science Advisory Committee in its report of May 15, 1963, entitled, "Use of Pesticides." The report recommended an orderly reduction in the use of persistent pesticides with their elimination being the goal. The report of the Environmental Pollution Panel of the PSAC entitled, "Restoring the Quality of Our Environment" also expressed concern over the persistence of pesticides in the environment, and recommended more stringent controls.

In November of 1966 the Department of Agriculture requested that a committee be appointed by the National Research Council to appraise the significance of residues

from the standpoint of their effects on the environment. The committee submitted its report in May of 1969, and recommended that immediate attention be given to the problem of buildup of persistent pesticides in the total environment. The Commission on Pesticides and Their Relationship to Environmental Health, appointed by the Secretary of Health, Education, and Welfare, recommended in its report of November 1969, that all uses of DDT be eliminated except those uses essential to the preservation of human health and welfare.

Current information on levels of DDT in the environment warrant the discontinuation of widespread use of DDT when such use is not essential in the production of food or the protection of health. Therefore, continued registration under the Federal Insecticide, Fungicide, and Rodenticide Act for products containing DDT bearing directions for use as indicated below is not considered to be in the public interest.

1. All uses on shade trees, including elm trees for control of the elm bark beetle which transmits the Dutch elm disease.
2. All uses on tobacco.
- [2] 3. All uses in or around the home except limited uses for control of disease vectors as determined by public health officials.
4. All uses in aquatic environments, marshes, wetlands, and adjacent areas, except those which are essential for the control of disease vectors as determined by public health officials.

In accordance with the provisions of Section 4 of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135d) you are hereby notified that products containing DDT which are registered under the Act with directions for such uses are no longer considered to be in compliance with the provisions of the Act and the registration of such products is canceled effective 30 days following the

receipt of this notice; unless, all directions for such uses are immediately deleted from the labels of such products or other procedures provided for under Section 4.c. of the Act are invoked.

Five copies of corrected labeling must be submitted to the Registration Branch, Pesticides Regulation Division, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C. 20250, if continued registration is desired.

Withdrawal or relabeling is not considered necessary for products already in channels of trade which bear directions for uses outlined above.

/s/ Harry W. Hays  
Director

DEPARTMENT OF AGRICULTURE

Agricultural Research Service

ECONOMIC POISONS CONTAINING  
DDT FOR CERTAIN USES

**Proposed Cancellation of Registration**

During the past 25 years DDT has been used extensively for the control of a variety of insect pests. In addition to widespread agricultural use it has been invaluable in the control of certain vectors of diseases. Its continued widespread use and relatively slow dissipation has resulted in contamination of the environment with low levels of DDT. Trace residues can often be detected in areas far removed from sites of application. This was recognized by the President's Science Advisory Committee in its report of May 15, 1963, entitled, "Use of Pesticides." The report recommended an orderly reduction in the use of persistent pesticides with their elimination being the goal. The report of the Environmental Pollution Panel of the PSAC entitled, "Restoring the Quality of Our Environment" also expressed concern over the persistence of pesticides in the environment, and recommended more stringent controls.

In November of 1966 the Department of Agriculture requested that a committee be appointed by the National Research Council to appraise the significance of residues from the standpoint of their effects on the environment. The committee submitted its report in May of 1969, and recommended that immediate attention be given to the problem of buildup of persistent pesticides in the total environment. The Commission on Pesticides and Their Relationship to Environmental Health, appointed by the Secretary of Health, Education, and Welfare, recommended in its report of November 1969 that all uses of DDT be eliminated except those uses essential to the preservation of human health and welfare.

Current information on levels of DDT in the environment warrant the discontinuation of widespread use of DDT when

such use is not essential in the production of food or the protection of health. Therefore, continued registration under the Federal Insecticide, Fungicide, and Rodenticide Act for products containing DDT bearing directions for use as indicated below is not considered to be in the public interest.

Action is being taken to cancel certain uses which contribute significantly to contamination of the environment. These are as follows:

1. All uses on shade trees, including elm trees for control of the elm bark beetle which transmits the Dutch elm disease.
2. All uses on tobacco.
3. All uses in or around the home except limited uses for control of disease vectors as determined by public health officials.
4. All uses in aquatic environments, marshes, wetlands, and adjacent areas, except those which are essential for the control of disease vectors as determined by public health officials.

Registrants have been advised on cancellation of registration for DDT products bearing directions for use as indicated above.

The Department is considering cancellation of any other uses of DDT unless it can be shown that certain uses are essential in the protection of human health and welfare and only those uses for which there are no effective and safe substitutes for the intended use will be continued. This notice is to afford interested persons an opportunity for a period of 90 days to submit views and comments on this proposal.

All persons who desire to submit written data, views, or arguments in connection with this matter should file the same with the Director, Pesticides Regulation Division, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C. 20250, within 90 days after the date of publication of this notice in the *Federal Register*. Please make reference in any submissions to "F.R. DDT Notice."

45 App.

All written submissions made pursuant to this notice will be made available for public inspection at such time and places and in a manner convenient to the public business (7 CFR 1.27(b)).

Done at Washington, D.C. this 20th day of November 1969.

HARRY W. HAYS,

*Director.*

*Pesticides Regulation Division.*

[F.R. Doc. 69-14024; Filed, Nov. 24, 1969; 8:50 a.m.]

No. 226-5

FEDERAL REGISTER, VOL. 34, NO. 226-TUESDAY, NOVEMBER 25, 1969

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IN THE  
UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 23,813

ENVIRONMENTAL DEFENSE FUND, INCORPORATED, SIERRA CLUB, WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL, and NATIONAL AUDUBON SOCIETY, *Petitioners*,

IZAAK WALTON LEAGUE OF AMERICA, and  
THE STATE OF NEW YORK, *Intervenors*.

v.

CLIFFORD M. HARDIN, SECRETARY OF AGRICULTURE, and  
UNITED STATES DEPARTMENT OF AGRICULTURE,  
*Respondents*.

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA,  
*Intervenor*.

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*Petition for Review of Order of The United States  
Department of Agriculture*

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SUPPLEMENTAL BRIEF FOR PETITIONERS

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Edward Lee Rogers O✓  
Environmental Defense  
Fund, Incorporated  
P.O. Drawer 740  
Stony Brook, New York

Edward Berlin O✓  
Berlin, Roisman and  
Kessler  
1910 N Street, N.W.  
Washington, D.C.

*Attorneys for  
Environmental Defense  
Fund, Incorporated*

James W. Moorman O✓  
Charles R. Halpern O✓  
2008 Hillyer Place, N.W.  
Washington, D.C. 20009

*Attorneys for Environmental  
Defense Fund, Incorporated,  
Sierra Club,  
West Michigan Environmental  
Action Council, National  
Audubon Society, and  
Izaak Walton League of  
America*

August 10, 1970





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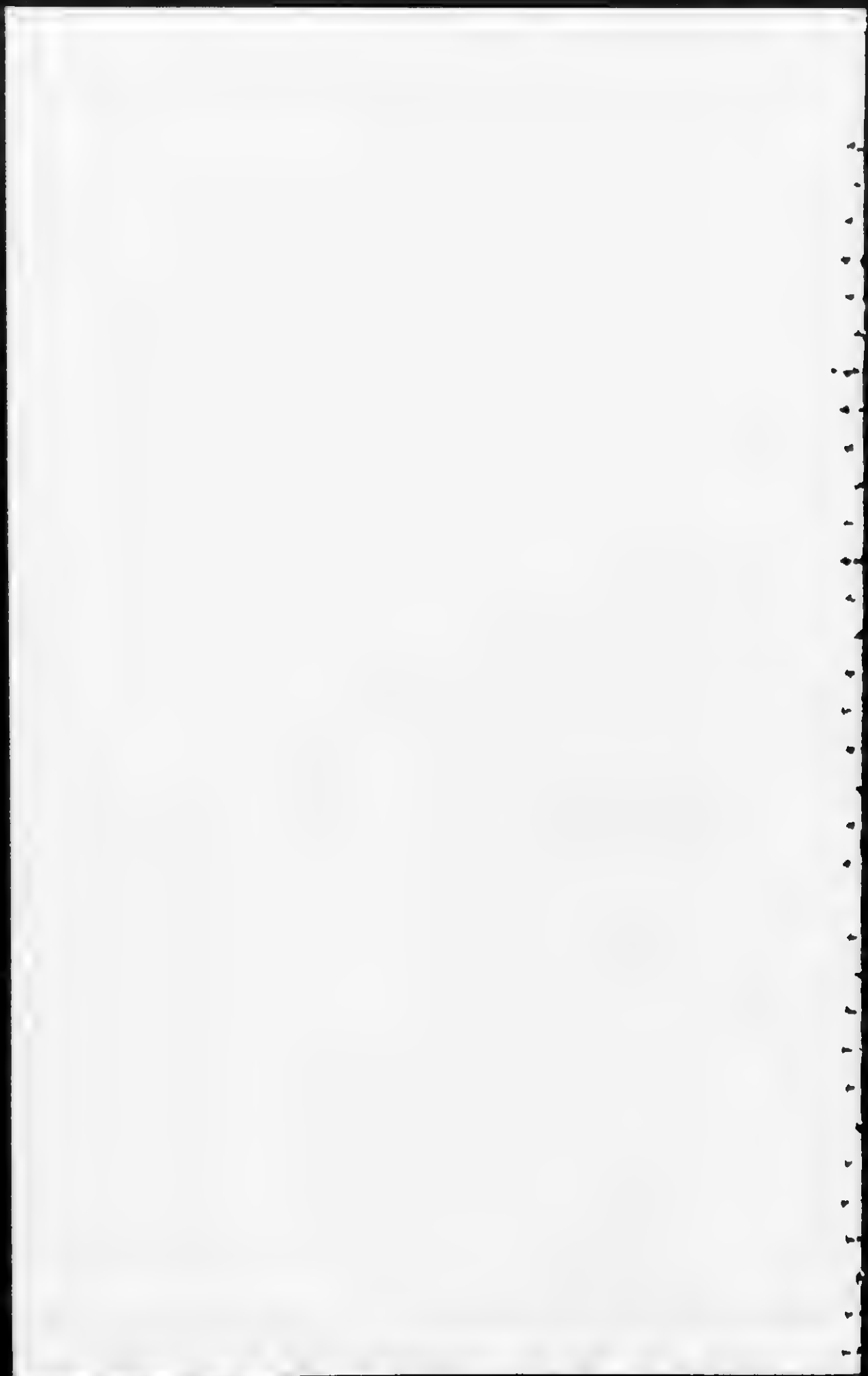
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## GLOSSARY OF ABBREVIATIONS USED IN CITATIONS IN SUPPLEMENTAL BRIEF FOR PETITIONERS

App.:	Appendix filed with the Court on February 13, 1970, as part of the Brief for Petitioners and Appendix
Bibli.:	A Bibliography on the Effects of DDT on Non-Target Organisms and Supplements thereto. (This Bibliography was submitted to Respondents on October 31, 1969, with the Petition and was filed with the Court by Respondents under cover of a Letter of February 12, 1970 (Supp. App. 75-79). Petitioners supplemented the Bibliography by letter of June 25, 1970, to Respondents, (Supp. App. 107-111) The references set forth in this letter and additional references were submitted to the Court pursuant to Petitioners' Motion to Supplement the Record of August 10, 1970.) (Supp. App. 96-105)
Index:	Index of Materials Submitted Pursuant to the Court's Order, Filed by Letter to the Clerk dated July 1, 1970 (Supp. App. 60-78)
Mrak, or Mrak Report:	Report of the Secretary of Health, Education and Welfare's Commission on Pesticides and Their Relationship to Environmental Health (December, 1969) (Supp. App. 282-311)
Pet. Brief:	Brief for Petitioners and Appendix, dated February 13, 1970
Statement:	Statement of the Reasons Underlying the Decisions on Behalf of the Secretary With Respect to the Registrations of Products Containing DDT, Filed on June 29, 1970 (Supp. App. 46-59)
Supp. App.:	Supplemental Appendix filed with the Court on August 20, 1970





IN THE  
UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 23,813

ENVIRONMENTAL DEFENSE FUND, INCORPORATED, SIERRA CLUB, WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL, and NATIONAL AUDUBON SOCIETY, *Petitioners*,

IZAAK WALTON LEAGUE OF AMERICA, and  
THE STATE OF NEW YORK, *Intervenors*,

v.

CLIFFORD M. HARDIN, SECRETARY OF AGRICULTURE, and  
UNITED STATES DEPARTMENT OF AGRICULTURE,  
*Respondents*,

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA,  
*Intervenor*.

---

*Petition for Review of Order of The United States  
Department of Agriculture*

---

SUPPLEMENTAL BRIEF FOR PETITIONERS

---

STATEMENT OF ISSUES PRESENTED FOR REVIEW

1. Whether Respondents have erred in denying Petitioners' request that they suspend the registrations of all economic poisons containing DDT, thereby initiating cancellation proceedings under Section 4c of the Federal Insecticide, Fungicide, and Rodenticide Act.

2. Whether Respondents have erred in denying Petitioners' alternative request that they issue notices under Section 4c of the Federal Insecticide, Fungicide, and Ro-

denticide Act to initiate cancellation proceedings for all registrations of economic poisons containing DDT.<sup>1</sup>

### PREVIOUS CONSIDERATION BY THIS COURT

This cause was previously before a panel including Chief Judge Bazelon and Judge Robinson on Respondents' Motion to Dismiss and Respondents' Motion for Reconsideration of Order Deferring Ruling on Motion to Dismiss. An Opinion and Order was entered on May 28, 1970, denying the Motion to Dismiss, remanding the case to the Respondents with directions to provide the Court with a record necessary for review, and retaining jurisdiction for the purpose of review.

A related case, *Environmental Defense Fund, Inc. v. United States Department of Health, Education and Welfare*, No. 23,812 (May 28, 1970), involving many of the same factual issues, was heard by Judges Wright, Robinson and Fahy. An Opinion in that case was also entered on May 28, 1970.

### THE RELATION OF THIS SUPPLEMENTAL BRIEF TO PREVIOUS BRIEFS OF PETITIONERS

Petitioners filed their Brief and Appendix with the Court on February 13, 1970, and a Reply Brief on March 11, 1970. In this Supplemental Brief Petitioners will update their arguments on the merits, taking into account the developments in the case since the Court's Order of May 28, 1970. The original Appendix contains the original Petition to Respondents (App. 1-19), Petitioners' List of Authorities (App. 20-27), the Affidavit of Dr. Charles F. Wurster (App. 28-32), and Agriculture's responsive documents (App.

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<sup>1</sup>The issues as stated here are essentially the same as issues 1 and 2 in Petitioners' Brief (cited herein as "Pet. Brief") filed February 13, 1970 (Pet. Brief 1-2).

34-45). Additional relevant materials will be set out in a separate Supplemental Appendix (cited herein as "Supp. App."). The pertinent sections of the Federal Insecticide, Fungicide, and Rodenticide Act (hereinafter referred to as "FIFRA") are set out in an Addendum to the Brief for Petitioners of February 13, 1970.

## REFERENCES TO RULINGS

Agriculture's Response to the Petition of December 11, 1969, is set forth at pages 36-45 of the original Appendix. Respondents' Statement of the Reasons Underlying the Decisions on Behalf of the Secretary with Respect to the Registrations of Products Containing DDT was filed with the Court on June 29, 1970, and is set out at pages 46-59 of the Supplemental Appendix.

## SUPPLEMENTAL STATEMENT OF THE CASE

*Petition Submitted to Respondents.* Because of their great concern over the problems being caused by DDT, Petitioners requested by a formal petition filed on October 31, 1969, that Respondents (1) initiate proceedings under Section 4c of FIFRA<sup>2</sup> to cancel DDT registrations, and (2) that they immediately suspend DDT registrations for the pendency of cancellation proceedings on the ground that DDT is an "imminent hazard to the public." The petition and related submissions are fully described at pages 4-7 of the Brief for Petitioners and set out at pages 1-32 of the Appendix.

*The Response to the Petition.* On December 11, 1969, Respondents denied Petitioners' request for immediate suspension and substantially denied Petitioners' request to commence cancellation procedures under Section 4c of FIFRA. Respondents, however, issued a Section 4c notice for four uses of DDT (tobacco, shade trees, household uses,

<sup>2</sup>U.S.C. § 135b (c), 61 Stat. 168, as amended by 78 Stat. 190.

and, with exceptions, aquatic uses) and solicited comments concerning other uses of DDT. A full description of the response is set out at pages 7-8 of Brief for Petitioners. The Response itself is set out at pages 34-45 of the Appendix.

*Proceedings in This Court.* Petitioners sought review in this Court on December 29, 1969, asking the following relief:

(a) that the Order of December 11, 1969, in response to the Petition of October 31, 1969, be set aside;

(b) that the Respondents be ordered to follow statutory procedures, issuing Section 4c notices to commence the procedures by which the registrations of all economic poisons that contain DDT could be cancelled; and

(c) that the Respondents be ordered to immediately suspend the registration of all economic poisons that contain DDT during Section 4c proceedings.

Because of the urgency of their cause, Petitioners moved, on December 29, 1969, that the matter be advanced on the docket and expedited. Respondents moved on January 12, 1970, to dismiss for lack of jurisdiction. On January 29, 1970, this Court, noting "the urgency of Petitioners' complaint and the importance of the public safety considerations which it raises," granted Petitioners' Motion to Expedite and ordered the jurisdictional questions raised by Respondents to be deferred for consideration with the merits. On February 2, 1970, Respondents moved for reconsideration of the Court's January 29 Order. While Petitioners fully briefed the merits, Respondents restricted themselves to the jurisdictional points raised on their Motion to Dismiss.

On May 28, 1970, this Court granted Respondents' Motion for Reconsideration without considering the merits, and ruled upon and denied Respondents' Motion to Dismiss. The Court remanded to the Secretary for further proceedings, retaining jurisdiction for future judicial review. Specifically, with regard to the suspension the Court said:

“ . . . Therefore, we must remand the case to the Secretary, either for a fresh determination on the question of suspension, or for a statement of reasons for his silent but effective refusal to suspend the registration of DDT. If he persists in denying suspension in the face of the impressive evidence presented by Petitioners, then the basis for that decision should appear clearly on the record, not in conclusory terms but in sufficient detail to permit prompt and effective review. In view of the emergency nature of the claim, we retain jurisdiction to permit Respondents to provide us, within thirty days, with the record necessary for review.” (Slip Op. 11)

With regard to the issuance of Section 4c cancellation notices, the Court said:

“At some point administrative delay amounts to a refusal to act, with sufficient finality and ripeness to permit judicial review. The present record does not permit us to determine whether that point has been reached here. On remand, the Secretary should either decide on the record whether to issue the remaining requested cancellation notices, or explain the reasons for deferring the decision still further. In light of that record, and in view of his disposition of the request for interim relief, the Court will be in a better position to evaluate the impact of any further delay and decide whether judicial relief is appropriate.” (Slip Op. 12)

Following remand, Montrose Chemical Corporation of California filed a Petition with Respondents, together with certain documents and a bibliography of 31 articles asking the Respondents to deny Petitioners' request that DDT registrations be suspended. In this Petition, Montrose stated:

“ . . . [T]here is no basis upon which the Department can properly suspend DDT registrations pending completion of the administrative and judicial review

procedures set forth in § 4 of the Federal Insecticide, Fungicide, and Rodenticide Act."

Petitioners, meanwhile, made an oral request to participate in the decision-making process of Respondents. Two letters between counsel show that Respondents refused to allow Petitioners to participate (Supp. App. 106,112). Although Respondents indicated that they would not consider further evidence from Petitioners, Petitioners supplied Respondents with an addendum to their original submissions consisting of citations of and comment on 22 reports of scientific experiments published or made available in this country since Petitioners filed their original petition on October 31, 1969 (Supp. App. 107-111).

On June 29, 1970, Respondents filed with the Court their Statement of the Reasons Underlying the Decisions on Behalf of the Secretary with Respect to the Registration of Products Containing DDT (hereinafter referred to as the "Statement") (Supp. App. 46-59), and related documents. It was therein stated:

"In accordance with this Court's order of May 28, 1970, I have reviewed, on behalf of the Secretary of Agriculture, the prior determination not to exercise the discretion conferred upon the Secretary by Section 4c of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, 7 U.S.C. 135b(c), to suspend the registrations of products containing DDT. Upon that review and on the basis of the considerations specified herein, I have concluded that there should be adherence to the prior determination that no DDT registration should be suspended at this time, and that further action with respect to cancellations should await completion of the use-by-use evaluations presently in progress." (Statement 1, Supp. App. 46)

Originally, the record had consisted primarily of Petitioners' initial submissions to Respondents. With the filing of their Statement, Respondents submitted certain documents

in support thereof,<sup>3</sup> in response to this Court's directive to "provide us . . . with the record necessary for review."<sup>4</sup> Prior to the filing of that Statement and supporting documents, however, Petitioners were given no opportunity to examine those documents and to make relevant additions to the record before it was submitted to this Court (Supp. App. 106, 112). Upon practically all points relied on by Respondents, the record is inadequate. Petitioners are, therefore, moving to supplement the record, and cite to the record as supplemented.

*The Facts Concerning DDT: Environmental Characteristics.* Although the history of DDT,<sup>5</sup> its uses, its characteristics and environmental behavior were set forth at length in the original Petition (App. 23-32), the basic environmental characteristics are restated here with complete documentation.

1. *Mobility*—DDT is a mobile material once it has been released in the environment. It leaves the site of application and is carried by air and water to all parts of the world (Bibli.<sup>6</sup> 1,2,4,9,21,22,29-32,41,60,78,106,157,174, 181,201,205,207,208,270,271,273,302,308; Supp. App. 127, 129,132,138,143,145,147,196,207,248)

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<sup>3</sup>Hereinafter, such documents are sometimes referred to as Respondents' materials or Respondents' documents.

<sup>4</sup>Respondents also filed with the documents an "Index of Materials Submitted Pursuant to the Court's Order," hereinafter referred to as the "Index." (Supp. App. 60-78).

<sup>5</sup>"DDT," sometimes called dichlorodiphenyltrichloroethane, is a mixture of substances which has as its major ingredient chemical compound, 1, 1, 1-trichloro-2,2-bis(p-chlorophenyl) ethane. "DDT residues" include DDT; DDE, 1, 1-dichloro-2,2-bis (p-chlorophenyl) ethylene; DDD, also known as TDE, 1,1-dichloro-2,2-bis (p-chlorophenyl) ethane; and several other closely related chemical compounds derived from DDT by conversion processes within the environment (App. 3).

<sup>6</sup>See Glossary, p. (v), *supra* for an explanation of Petitioners' Bibliography, which is set out at pages 79-102 of The Supplemental Appendix.



2. *Persistence*—DDT is extremely stable or persistent in the environment, retaining its broad spectrum of toxicity and biological activity for many years. This activity persists in DDT found in nontarget organisms and in DDT that is far removed in time and distance from the original site of its application (Bibli. 25,36,41,45,60,79,86,95,136,137, 202, 207; Supp. App. 161).

3. *Solubility Characteristics*—DDT has a very low solubility in water, but a high solubility in lipid or fatty tissues (Bibli. 20, 60, 139; Supp. App. 142). Since all organisms contain lipids, they accumulate DDT from the inorganic environment in which they live and retain it in their tissues. Non-target organisms, including man, all over the world have therefore become contaminated with its residues (Bibli. 7,8,28,29,41,45,47,50,60,71,76,86,87,90,103,106, 109,115,131,132,136,146,148,149,155,156,161,174,179, 182,208,209,213,214,215,220,221,223,225,233,235,241 250,253,257,259,260,263,265,271,272,273,278,279,280, 283,285,293,295,298,301,306,307,309,310,318,326; Supp. App. 135,137,144,145,157,170,181,184,195,198,209,213, 214,215,218,222,241,246,247,248,254,256,257,261, 266, 277,279;).

4. *Biological Activity*—DDT has a broad spectrum of toxicity and biological activity to virtually all animals and some plants. It is a biocide—not merely an insecticide (Bibli. 12,46,49,55,56,61,62,72,77,89,97,99,100,107,116, 117,118,127,143,164,165,175,191-196,198,211,212,213, 218,226,233,236,240,244,245,253,256,268,274,275,276, 277,278,280,281,287,289,290,317; Supp. App. 139,150, 153,164,166,175,186,201,211,212,213,217,223,239,240, 241,242,249,252,253,255,259;). It affects non-target organisms by various mechanisms of action including nerve toxicity (Bibli. 12,28,49,54,74,101,121,122,139,140,180,204, 212,213,217,234,249,286; Supp. App. 139,144,149,167, 200,212,213,216,259), hepatic enzyme induction (Bibli. 42, 112,145,222,229,260,274,275,284; Supp. App. 187,249, 252), enzyme inhibition (Bibli. 39,67,88,211,218,232,274, 275,276; Supp. App. 151,211,217,220,249,252), estrogenic



activity (Bibli. 17,102,264; Supp. App. 141,168,245), photo-synthetic inhibition (Bibli. 215,281, Supp. App. 215,255), carcinogenesis (Bibli. 223,226,231,238,258,262,285,293; Supp. App. 218,224,243,244,257,261), and mutagenesis (Bibli. 300; Supp. App. 270).

5. *Biological Concentration*—DDT is passed up food chains as one organism becomes food for another. Because the remains of the food organisms are excreted but the DDT is retained, it becomes more concentrated with each higher step in the food chain. DDT therefore reaches the highest concentration in carnivores at the tops of these food chains, including birds, fish and man (Bibli. 6,7,28,47, 50,87,90,94,95,103,105,109,148,149,161,164,165,208,209, 211,221,223,225,250,260,268,277,278,285,295,298,309, 310,311; Supp. App. 133,135,144,157,159,161,170,173, 209,211,218,253,257,266).

We do not understand Respondents' position to be based on a denial of any of the foregoing characteristics of DDT, but upon their consequences. Because the above combination of characteristics exists regardless of where, by whom, for whatever reason, or in what manner it is applied, DDT is an inherently uncontrollable material once it has been released into the environment. As such it is a hazard accumulating in all non-target organisms, including man.

*The Facts Concerning DDT: Hazards to Fish and Wildlife and to Human Health.* DDT is causing serious, permanent and irreparable damage to man, wildlife resources and to the earth's environment. The harm is of a widespread, immediate and continuing nature. (See generally App. 12-16, 28-31; Mrak 206-212; Supp. App. 286,292).

DDT is endangering the reproduction and survival of many non-target organisms (Mrak 179, 189, 206-212; Statement 5; Supp. App. 50,284-92). For example, DDT residues are a major hazard to bird populations, causing direct death, reproductive failure and, in some species, catastrophic declines approaching extinction (App. 13-14, 29; Mrak 179, 189, 211-212; Statement 5; Supp. App. 50,133,135,139,

151,153,164,173,181,189,192,201,210-214,217,220,223, 242,246,249,252,253,254,284,285,291,292; Bibli. 3,6,7, 12,85-89,97,105,109,115,150,154,179,191-196,210-214, 218,232,233,236,256,257,260,265,274-280). DDT likewise is causing direct kills and reproductive failures of fish, threatening important freshwater and marine fisheries (App. 14,29); Mrak 209,210; Statement 5; Supp. App. 50,137,144, 150,172,194,222,239,240,247,248,289,290; Bibli. 8,28,46, 47,62,104,156,224,235,244,245,272,273,316,317). DDT and DDT residues are also causing great damage to useful invertebrates of many species (App. 14-15,30; Supp. App. 166, 241,278,287-289; Mrak 208-209; Bibli. 77,99,100,117,168, 253,299,321,324,325) and are causing a variety of other ecological and environmental damage (App. 15, 30; Supp. App. 278, 285-289; Mrak 189, 206-209; Bibli. 269,321,324,325).

DDT has also been demonstrated to be a carcinogen (cancer-causing agent) in test animals in a definitive study sponsored by the National Cancer Institute (Supp. App. 296-299,301; Bibli. 238; and see App. 15-16; Mrak 470-472, 481-483), which confirmed earlier evidence of the same nature (App. 16, 30-31; Supp. App. 244,261; Bibli. 226, 231, 262,293). Carcinogenesis in these animals indicates a high probability, but not a certainty, that DDT is a human carcinogen (Supp. App. 261,300; Mrak 482; Bibli. 293,294). Other studies found human victims of terminal cancer to contain more than twice the concentration of DDT residues in their fat as occurs in the general population (App. 16, 30-31; Supp. App. 218,243,257,305; Mrak 495; Bibli. 223,258,285).

Recent scientific findings demonstrated that DDT is mutagenic to rats. As with carcinogenesis, mutagenesis in rats indicates a high probability, but not a certainty, that DDT affects human genetics. The deleterious effects of DDT may therefore occur in future generations (Supp. App. 270, 306-311; Mrak 567-572; Bibli. 300).

Carcinogenesis and mutagenesis are specific, relatively rare biological events and the ability to induce them is possessed by relatively few chemicals (Supp. App. 261,270; Bibli. 238,293,300). Employment of high dosage levels in test

animals represents the only practical and valid method for evaluating the carcinogenic and mutagenic potential of chemicals (Supp. App. 261,270; Bibli. 293,294,300). Contrary to popular belief, high dosage levels cannot convert innocuous materials into carcinogens and mutagens (Supp. App. 261,270; Bibli. 293,294,300).

The current contamination of the environment and human tissues with DDT therefore represents an unacceptable hazard of cancer and genetic damage to man.

## ARGUMENT

### I

#### RESPONDENTS HAVE ERRED IN DENYING PETITIONERS' REQUEST THAT THEY SUSPEND REGISTRATIONS OF ALL ECONOMIC POISONS CONTAINING DDT AND THEREBY INITIATE CANCELLATION PROCEEDINGS UNDER SECTION 4c OF THE FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

Section 4c of FIFRA provides for the immediate suspension of the registration of economic poisons when "such action is necessary to prevent an imminent hazard to the public."<sup>7</sup> Respondents have concluded that DDT is not such an "imminent hazard to the public"<sup>8</sup> and have, as a result, confirmed their earlier decision to deny Petitioners' request that they suspend DDT registrations.<sup>9</sup> Respondents

<sup>7</sup>Section 4c of FIFRA, 70 U.S.C. § 135b (c), provides, in part:

"Notwithstanding any other provision of this Section, the Secretary may, when he finds that such action is necessary to prevent an *imminent hazard to the public*, by order, suspend the registration of an economic poison immediately. In such a case, he shall give the registrant prompt notice of such action and afford the registrant the opportunity to have the matter submitted to an advisory committee and for an expedited hearing under this section." (Emphasis added.)

<sup>8</sup>Supp. App. 58; Statement 13.

<sup>9</sup>"I have concluded that there should be adherence to the prior determination that no DDT registration should be suspended at this time . . ." Statement 1; Supp. App. 46.

erred in so concluding by placing the burden of proof on the Petitioners. Furthermore, Respondents' conclusion is clearly erroneous because it is inconsistent with uncontroverted evidence that DDT (1) causes cancer in test animals, and (2) is causing widespread harm to wildlife populations. The evidence on either the question of carcinogenicity or harm to wildlife, alone, compels a conclusion that DDT is an imminent hazard to the public. Indeed, not only is the evidence on these two points largely uncontroverted, but Respondents in effect admit these points in their statement.

To avoid the conclusion that DDT is an imminent hazard, Respondents rely essentially upon (1) the claim that DDT is needed to control disease vectors, and (2) that it is needed for some crop uses for which there are no alternatives. Petitioners will show, however, that DDT is neither used extensively nor needed to control disease vectors and that its primary use is on cotton.<sup>10</sup>

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<sup>10</sup>This Court held in its opinion of May 28, 1970, that a decision of Respondents not to suspend DDT registrations is reviewable.

"Although the FIFRA provides that the Secretary 'may' suspend the registration of an economic poison that creates an imminent hazard to the public, we conclude that his decision is not thereby placed beyond judicial scrutiny." *Environmental Defense Fund, Inc. v. Hardin*, No. 23,813 (May 28, 1970); Slip Op. at 7 and 8.

Section 4d of FIFRA, 7 U.S.C. § 135b (d), provides, in part, that:

"The findings of the Secretary with respect to questions of fact shall be sustained if supported by substantial evidence when considered on the record as a whole, including any report and recommendation of an advisory committee."

**A. Respondents Failed to Suspend the Registration of Economic Poisons Containing DDT Because They Erroneously Placed the Burden of Proof on Petitioners.**

Section 4c of FIFRA provides for the suspension of registrations "when . . . necessary to prevent an imminent hazard to the public." Its purpose is to provide *immediate* relief to the public during the substantial delays Congress built into the cancellation proceedings.<sup>11</sup> Petitioners have submitted strong evidence, requiring immediate suspension, that DDT is a carcinogen and is destructive of fish and wildlife species and populations. Respondents, nevertheless, have refused to suspend DDT registrations<sup>12</sup> and initiate the cancellation procedure whereby manufacturers would be required to prove the safety of DDT. Respondents so refused in part on the ground that Petitioners have not proven DDT to cause sufficient harm to consider it an imminent hazard. To be specific, Respondents state that Petitioners have not shown conclusively that DDT causes cancer in man,<sup>13</sup> or that the "vast majority" of non-target organisms are threatened.<sup>14</sup>

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<sup>11</sup> In the words of Congresswoman Sullivan during debate on the suspension and cancellation provision:

"The burden of proof should not rest on the Government, because great damage can be done during the period the Government is developing the data necessary to remove a product which should not be marketed." 110 Cong. Rec. 2949, 88th Cong., 2d Sess. (1964).

<sup>12</sup> "I have concluded that there should be adherence to the prior determination that no DDT registration should be suspended at this time . . . ." Statement 1; Supp. App. 48

<sup>13</sup> "[T]he claim that DDT has a carcinogenic effect upon humans constitutes an unproved speculation." Statement 3; Supp. App. 48.

<sup>14</sup> "There is no evidence of harm to the vast majority of non-target organisms." Statement 6; Supp. App. 51.

As Petitioners pointed out in their original Brief (Pet. Brief, 16-17), the whole purpose of the 1964 FIFRA amendments,<sup>15</sup> that added the suspension and cancellation procedures to FIFRA, was to place on manufacturers the burden of proving their products safe. This is true both when a manufacturer seeks to register its product and when the government seeks to remove a pesticide from the market by suspension and cancellation.<sup>16</sup>

Prior to the 1964 amendments, a manufacturer could demand that his product be registered even if the Secretary of Agriculture objected. If the Secretary wished to attack such a protest registration, he had to file suit and assume the burden of proof in establishing that the product did not conform to FIFRA standards. The 1964 amendments abolished this practice and placed the burden of proving compliance on the registrant:

"The purpose of this bill [H.R. 9739] is to end the practice of protest registration whereby the manufacturer of a pesticide can *market* a product despite Department of Agriculture doubts as to its effectiveness and safety.

\* \* \*

"The principal effect of registration under protest is to shift the burden of proof from the registrant to the Government. If the product . . . is registered under protest, the Government has the burden of proving that the product does not comply with the Act.

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<sup>15</sup> Amendments of May 11, 1964, Pub. Law 88-305, 78 Stat. 190.

<sup>16</sup> Respondents' Regulations so provide. 7 C.F.R. § 364.28 provides that: "At the hearing, the person whose objections raised the issues to be determined shall be . . . the proponent of the order sought and accordingly shall proceed first at the hearing and have the burden of proof." Because hearings can only be triggered by the objections of a manufacturer to a Section 4c suspension or notice of cancellation, the effect of Section 364.28 is to place the burden of proof on manufacturers during Section 4c proceedings.

"The bill will correct this situation and afford greater protection to the public by repealing the authority for registration under protest."<sup>17</sup> (Emphasis added.)

Congresswoman Leonor Sullivan of Missouri stated on February 17, 1964:

"... I am strongly in favor of the legislation now before you to require industry, rather than the Federal Government, to shoulder the burden of proof in connection with the marketing of pesticides which may be unsafe for use as intended.

\* \* \*

"We must close any loopholes in the law which permit manufacturers to market products they cannot prove are safe in use in the manner intended. The burden of proof should not rest on the Government, because great damage can be done during the period the Government is developing the data necessary to remove a product which should not be marketed."<sup>18</sup>

The Respondents' action in shifting the burden to Petitioners is clearly not what is contemplated by FIFRA. (As we demonstrate later, however, such action is part of a pattern of conduct by Respondents (see p. 40.) *infra*, and see Petitioners' original Brief, 17-18).

The burden on the manufacturers under FIFRA is the same as under Food, Drug, and Cosmetic Act procedures for amending legal residue tolerances of pesticides on raw agricultural commodities. In the words of Judge Wright in

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<sup>17</sup>H. Rept. No. 1125 on H.R. 9739, 88th Cong., 2nd Sess., 64 U.S.C. Cong. & Ad. News 2166-2167.

<sup>18</sup>110 Cong. Rec. 2948-9, 88th Cong. 2nd Sess., 1964. Also see debate, 110 Cong. Rec. 7189. Congresswoman Sullivan appeared before the Subcommittee of the House Agriculture Committee in support of the legislation. At that time, she was Chairman of the Subcommittee on Consumer Affairs of the House Banking and Currency Committee.



*Environmental Defense Fund v. United States Department of Health, Education and Welfare*, No. 23,812 (May 28, 1970):

"In light of Congress' strong concern about the safety of pesticide residues and the congressional intent to place the burden of persuasion on those proposing to permit a residue to remain, the fact that the present petition seeks revocation of an existing tolerance does not affect the burden of persuasion established by Congress. See Note 8, *supra*. Once new evidence bearing on the safety of pesticide residues has been adduced or cited sufficient to justify reopening the issue of the validity of existing tolerances, as in the present case, the burden of establishing the safety of any tolerance remains on those who seek to permit a residue. In this connection we note that the statute itself explicitly requires that the procedures for amending or repealing tolerances should be the same as those for establishing tolerances. 21 U.S.C. § 346a(m)." Slip Op. 16, note 27.

There is no reason to treat the FIFRA pesticide procedures differently from the Food, Drug, and Cosmetic Act pesticide procedures. To do so would create an anomalous situation in which the same evidence of harm caused by DDT would be accorded drastically different treatment under statutes which require similar standards of safety.

This situation is highlighted by the evidence that DDT causes cancer in test animals. Despite the insistence of Congress<sup>19</sup> and two courts of appeals<sup>20</sup> that the evidence of carcinogenicity in test animals is to be treated as evi-

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<sup>19</sup> 21 U.S.C. § 348 (c) (3) (A), 72 Stat. 1725 and 21 U.S.C. § 376 (b) (5) (B), 74 Stat. 399. See discussion of the anticarcinogen amendments (Delaney Amendments) in *Environmental Defense Fund v. U.S. Department of Health, Education and Welfare*, *supra*, and see discussion in Petitioners' Brief at 21-23.

<sup>20</sup> See *Environmental Defense Fund v. U.S. Department of Health, Education, and Welfare*, *supra*, and *Bell v. Goddard*, 366 F.2d 177 (7th Cir. 1966).



dence of carcinogenesis in man, Respondents refuse to accept the presumption. Instead, they presume the opposite, that DDT does not cause cancer in man (see Statement 3, 13; Supp. App. 58).

In *Environmental Defense Fund v. United States Department of Health, Education and Welfare*, *supra* (Slip Op. at 15-16), Judge Wright discussed the way evidence of carcinogenicity in test animals is to be treated by the Secretary of Health, Education and Welfare when amending pesticide tolerances "to protect the public health." Judge Wright pointed out that under the circumstance where there is no scientific basis for determining a "safe" residue for a chemical known to produce cancer in experimental animals, "it would obviously be impossible to meet the congressionally imposed burden of establishing the safety of a residue of such a pesticide." Judge Wright went on to state:

"If the evidence demonstrates that DDT is a carcinogen and the Secretary proposes to continue in effect any DDT tolerance on raw agricultural commodities, he would, of course, be required to explain the basis on which he determined such tolerances to be 'safe.'"

Respondents' obligation under FIFRA to "protect the public"<sup>21</sup> and "prevent injury to living man and other vertebrate animals, vegetation and useful invertebrate animals"<sup>22</sup> is analogous to the Secretary of Health, Education and Welfare's obligation to protect the public health. In this case, however, Respondents have cited no scientific evidence supporting the basis upon which they have determined DDT to be safe; they merely assert that DDT has not been "proven" to cause cancer in man.

Judge Wright said, essentially, that the Secretary must treat evidence of DDT's carcinogenicity in animals as evidence of its carcinogenicity in man unless he has convinc-

<sup>21</sup> FIFRA Section 2z (2) (c), 7 U.S.C. § 135 (z) (2) (c).

<sup>22</sup> FIFRA Section 2z (2) (d), 7 U.S.C. § 135 (z) (2) (d). See discussion of cancellation, p. 35, *infra*.

ing evidence to the contrary. There is no evidence to the contrary; Respondents must assume DDT is carcinogenic in man and thus an imminent hazard to the public.

Turning from carcinogenicity to the harm being caused to wildlife. Respondents have no basis for demanding greater proof from Petitioners than they have already received. As Petitioners demonstrated earlier, the imminent hazard provision was designed to protect wildlife as well as human health (Pet. Brief, 20). The legislative history of the suspension provision so demonstrates. The 1964 amendments were passed as a result of the concern generated by Rachel Carson's *Silent Spring*.<sup>23</sup> The Senate Agriculture Committee Report indicates that the suspension provisions were intended to encompass protection of fish and wildlife.<sup>24</sup>

In addition to their obligations under FIFRA, Respondents were given a special duty to protect wildlife in 1966 under the Endangered Species Act.<sup>25</sup>

"It is further declared to be the policy of Congress that the Secretary of the Interior, the Secretary of Agriculture, and the Secretary of Defense together with the heads of bureaus, agencies and services within their departments, shall seek to protect species of native fish and wildlife, including migratory birds that are threatened with extinction."

The Endangered Species Act requires Respondents to act with special concern when fish and wildlife species are threatened with extinction. Respondents admit that certain bird species are declining because of DDT (Supp. App. 50; Statement 5). The evidence in the record is that they are endangered species.<sup>26</sup> Respondents, under the circumstances,

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<sup>23</sup>See statement of Senator Ribicoff, 110 Cong. Rec. 7189; statement of Congresswoman Sullivan, 110 Cong. Rec. 2949.

<sup>24</sup>Page 3, S. Rept. No. 573, 88th Cong., 1st Sess. (1963).

<sup>25</sup>16 U.S.C. §§ 668aa, *et seq.*, 80 Stat. 926.

<sup>26</sup>See p. 24-30, *infra*.

are legally compelled to find DDT an imminent hazard to the public and cannot place a burden on Petitioners to show a danger to the "overwhelming majority" of species.<sup>27</sup> As with the evidence that DDT causes cancer in test animals, the burden is on the manufacturers to show that their product is safe or on Respondents to explain why it is safe. It is not upon Petitioners to show more harm.

Petitioners have supplied ample proof of the harm caused by DDT. This evidence is uncontroverted and compels a conclusion that DDT is an imminent hazard to the public. Respondents cannot lawfully avoid that conclusion by placing a heavier burden on Petitioners than the statute imposes.<sup>28</sup>

#### **B. The Evidence Compels a Conclusion that DDT is an "Imminent Hazard to the Public."**

Respondents have concluded that DDT is not an imminent hazard, either to human health or to fish and wildlife. Respondents' conclusion, however, is made in the face of evidence which compels the opposite conclusion. Furthermore, Respondents cannot justify their conclusion on other grounds. As a result, Respondents' decision not to suspend DDT registrations is reversible error.

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<sup>27</sup>In fact, such a burden would be impossible. "To date, the effects of pesticides have been studied in less than 1 percent of the animal species present in the United States." *Environmental Quality: The First Annual Report of the [President's] Council on Environmental Quality*, p. 134 (Aug. 10, 1970).

<sup>28</sup>This Court dealt with a similar problem in its second *United Church of Christ* decision when it held that the FCC had erroneously cast the burden of proof upon intervenors on behalf of the public. The Court in that case found the record of the FCC beyond repair and ordered the FCC to cancel the contested license in question. *Office of Communication of the United Church of Christ v. Federal Communications Commission*, No. 19,403 (D.C. App. June 20, 1969). In this case, as in the *United Church of Christ* case, the Respondents have placed on Petitioners a crushing burden of proof that they are not required by law to carry.

1. *The Evidence that DDT Causes Cancer and Other Health Problems Compels a Conclusion that DDT Is an Imminent Hazard to the Public.*

Respondents have concluded that "evidence now available does not establish that the use of DDT constitutes an imminent hazard to human health" (Statement 13; Supp. App. 58). This conclusion is made in the face of clear and convincing evidence that DDT causes cancer in test animals and causes other health problems. As a result, Respondents' failure to conclude that DDT is an "imminent hazard" is erroneous as a matter of law.

a. *The Evidence that DDT Is Carcinogenic.* The evidence in this case supplied by Petitioners establishes that DDT is a cancer-causing agent (Supp. App. 296-298, 299, 301; App. 15-16, 30-31; Mrak 470-472, 481-483) which is widely dispersed through the environment (App. 13, 29; Mrak 99-176), contaminating human food (Supp. App. 238c-238g; App. 13, 28; Mrak 321-341). This evidence was considered "impressive" by the Mrak Commission (Supp. App. 297; Mrak 471) and this Court has quoted the Mrak Report on that point. *Environmental Defense Fund v. United States Department of Health, Education and Welfare, supra* (Slip Op. 2).

The evidence of carcinogenicity upon which Petitioners rely is found in the comprehensive "Innes Report" of the National Cancer Institute.<sup>29</sup> The Innes Report marshalls conclusive evidence that DDT causes cancer in test animals.

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<sup>29</sup>Innes, J.R.M., et al., *Bioassay of Pesticides and Industrial Chemicals for Tumorigenicity in Mice: A Preliminary Study*, Journal of the National Cancer Institute 42, 1101 (June, 1969) (Supp. App. 224; Bibli. 238).

The Report was the subject of considerable examination by the Mrak Commission which confirmed its validity.<sup>30</sup> In addition, Petitioners submitted an earlier study which showed the carcinogenicity of DDT in test animals when ingested over prolonged periods at low dosage levels (Supp. App. 244; Bibli. 262) and studies giving results consistent with the probability that DDT is a human carcinogen. (Human victims of terminal cancer contained more than twice the concentration of DDT residues in their fat as did victims of accidental death (Supp. App. 218,243,257; Bibli. 223, 258, 285).)

The Respondents have confirmed Petitioners' contention, supported by evidence, that DDT has accumulated in most forms of life, including man (Statement 2, 5; Supp. App. 47-50) and that DDT has been shown to cause cancer in test animals. Furthermore, Respondents acknowledge, "There are reports of carcinogenicity resulting from the administration of large doses of DDT in test animals." (Statement 3; Supp. App. 48) Despite this, Respondents refuse to find DDT an imminent hazard to the public. Instead, they state that "the relevance of such findings to cancer in man has not been established." (Statement 3; Supp. App. 48)

Because experimentation with human subjects is difficult or impossible, and raises serious moral and ethical problems, laboratory animals are normally used as substitutes (Supp. App. 261; Bibli. 293). Competent, controlled animal experiments with DDT have revealed it to be an active carcinogen (Supp. App. 261; Bibli. 293). Studies involving, variously, rats, mice and trout (Supp. App. 224,244; Bibli. 226,231,238, 262) indicate a high probability, but not a certainty, that

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<sup>30</sup>"The evidence for the carcinogenicity of DDT in experimental animals is impressive and the Panel takes no exception to the conclusions as to DDT recorded in the JNCI report of The National Cancer Institute Study. *This study has demonstrated that DDT increased the incidence of cancer in mice under the experimental conditions employed . . .*" (Emphasis in original.) (Mrak 471; Supp. App. 297)

DDT is a human carcinogen and that the current contamination of the general population is responsible for some finite rate of cancer induction.<sup>31</sup> It would seem quite clear, then, that Respondents draw a misleading conclusion from the facts by stating that DDT's carcinogenic effect on humans is "an unproved speculation."<sup>32</sup>

Respondents' contention is contradicted by the Mrak Report:

"... [A] remarkable degree of concurrence has been found to exist between chemical carcinogenesis in animals and that in man where it has been studied closely." (Mrak 481; Supp. App. 300)

And by Epstein:

"These data on the carcinogenicity of DDT in a wide range of animal strains and species unequivocally demonstrate a highly significant potential carcinogenic hazard to man." (Supp. App. 261; Bibli. 293)

The assertion of Respondents that DDT has not been *proven* to cause cancer in man misses the point. Carcinogenicity in test animals must be regarded as indicative of a high probability that DDT is also carcinogenic in man.<sup>33</sup>

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<sup>31</sup> Supp. App. 261; Bibli. 293, 294. Also see Mrak 487, Supp. App. 302. This probability is further supported by the findings of studies showing that human victims of terminal cancer contain much more DDT in their tissues than is found in the general population. Bibli. 223, 258, 285, Supp. App. 218, 243, 257.

<sup>32</sup> Indeed, Respondents' authorities for this proposition (Index: II-13, -14, -14a-14b) are not convincing in that they do not represent reports of original research.

<sup>33</sup> It is clear that the Respondents refuse to recognize that the amount of research evidence "sufficient for them to make a social policy decision" that DDT is an imminent hazard to the public, is less than that "sufficient to establish proof of a causal relation within the policy-neutral and more exacting framework of basic scientific research." See Reiser, S.J., *Smoking and Health: The Congress and Causality*, in Sanford, *Knowledge and Power*, pp. 293-311 (1966).

Thus, the uncontroverted evidence in the record compels a conclusion that DDT is an imminent hazard to the public.

b. *The Evidence that DDT is Causing Additional Health Problems.* Respondents suggest that DDT is safe to human health when used in accordance with labels. (See Statement 2, 5; Supp. App. 47-50.) They also assert that no adverse effects were observed in volunteers ingesting 35 milligrams of DDT per day or in factory workers. These studies, however, only investigated acute toxicity, while Petitioners raise sublethal and chronic toxicity hazards. Respondents' studies could not have revealed cancer, mutagenesis, liver abnormalities and other chronic problems in man.<sup>34</sup>

In contrast to the studies upon which Respondents rely, recent studies abroad have revealed that workers in DDT factories suffer serious health problems. Examinations of workers occupationally exposed to DDT in the Soviet Union revealed numerous abnormalities in liver, stomach, kidney, enzymatic and neurological functions.<sup>35</sup>

Of great significance is the recent report of research with rats which has shown DDT to have a mutagenic effect.<sup>36</sup> As with carcinogenesis, mutagenesis in rats indicates a high probability—but not a certainty—that DDT affects human genetics. Most mutations are harmful, do not show up

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<sup>34</sup> See e.g., references of Respondents to Hayes (Index II-6, II-7, II-9, II-10). Almost all of the references in support of DDT safety on page 2 of the Statement (Supp. App. 47) are irrelevant to the proposition for which they are cited (see Index II-6 through II-10g). For example, a report by Hart and Fouts (Index II-10c) concerns the hepatic enzyme induction brought on by the administration of DDT to rats. The report shows that DDT caused an increased breakdown of various drugs in rats and has nothing to do with "wide margins of safety" (Statement 2; Supp. App. 47). The paper by Dale, *et al.* (Index II-7) simply does not support Respondents' assertions.

<sup>35</sup> Supp. App. 259, 265; Bibli. 286-290, 296, 297.

<sup>36</sup> Supp. App. 270; Bibli. 300.



until later generations, and unless lethal, are not eliminated from human populations once induced.<sup>37</sup> The significance of mutagenesis must be considered equal to carcinogenesis.

Petitioners also note that the induction by DDT of liver enzymes that cause breakdown of steroid sex hormones has been known for more than a decade in laboratory animals. Recently this has been shown to occur in man, although we do not yet know what physiological effect this might have (Bibli. 42, 112, 229, 284).

The evidence is that DDT is a carcinogen and a mutagen and that it causes other health problems. This Record compels a conclusion that DDT is an imminent hazard to the public.

*2. The Evidence that DDT is Causing Harm to Fish and Wildlife Compels a Conclusion of Imminent Hazard.*

Since Justice Douglas noted the growing alarm over DDT's effects on wildlife and human health ten years ago,<sup>38</sup> there has been a growing body of evidence of the harm caused by DDT to fish, wildlife and other non-target organisms. Respondents, however, have concluded "that the present available scientific evidence indicates that there are some adverse effects upon certain species of fish and wildlife as a result of the use of DDT, but that such effects do not constitute an imminent hazard to fish and wildlife or the environment." (Statement 13; Supp. App. 58.) As with carcinogenicity, however, this conclusion is made in the face of uncontroverted evidence and Respondents' own admissions of harm. It is, therefore, erroneous as a matter of law.

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<sup>37</sup>Supp. App. 270,306-311; Bibli. 300; Mrak 567-572.

<sup>38</sup>*Murphy v. Butler*, 362 U.S. 929, 933-934 (1960), dissenting opinion on denial of certiorari.



Petitioners submitted evidence to Respondents that DDT is causing serious harm to fish and wildlife populations<sup>39</sup> and is a serious threat to the continued existence of certain prized species such as the national bird, the bald eagle, and the peregrine falcon.<sup>40</sup> Petitioners have also supplied evidence of the serious threat posed to important fresh and salt water fisheries by DDT.<sup>41</sup>

Much of the harm caused by DDT occurs because residues of DDT are passed up the food chain as one organism becomes food for the next.<sup>42</sup> The food material is metabolized and excreted, but the DDT is retained, thereby becoming more concentrated in the higher organism than it had been in the food organisms.<sup>43</sup> As DDT passes up food chains, therefore, it reaches its highest levels of concentration in the carnivorous animals at the top of these food pyramids. This biological concentration causes such carnivores as fish, birds and man to accumulate concentrations of DDT that are sometimes more than a million times greater than is present in their environment.<sup>44</sup> The natural feeding habits of the organism thus largely determine its exposure to DDT.

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<sup>39</sup> App. 13-14, 29; Supp. App. 284-292; Mrak 179,189,206-212. On May 21, 1970, the State of Wisconsin Department of Natural Resources confirmed Respondents' position and ruled DDT an environmental pollutant under Sections 144.01 (11) and 144.30 (9), Wisconsin Statutes, "by contaminating and rendering unclean and impure the air, land and waters of the State and making the same injurious to public health and deleterious to fish and bird life." (Supp. App. 124)

<sup>40</sup> Supp. App. 192,249,291-292; Bibli. 87,154,179,274; Mrak 211-212.

<sup>41</sup> App. 14; Supp. App. 288-290; Bibli. 225,295,306,317; Mrak 208-210.

<sup>42</sup> Supp. App. 157,159,161,209; Bibli. 86,90,94,95,161,209.

<sup>43</sup> Bibli. 268.

<sup>44</sup> Supp. App. 157,209; Bibli. 90,209.

Respondents admit that "[t]here is information which suggests that [DDT] is interfering with the reproduction of certain species of raptorial birds and may be a contributor, among other factors, to the decline of some of these species." (Statement 5; Supp. App. 50) In fact, during the past two decades certain species of carnivorous birds have undergone unprecedented population declines as a result of DDT.<sup>45</sup> Since 1950, for example, the peregrine falcon, the spectacular bird of falconry and a species formerly known for the great stability of its numbers, has declined by 60 to 100% in Europe and Russia, by 95% in Western North America, and to extinction as a breeding species in Eastern North America since 1950.<sup>46</sup> The bald eagle, osprey, brown pelican, Cooper's and sharp-shinned hawks, and a number of other species have been similarly affected.<sup>47</sup> The brown pelican, for example, is largely gone from the Gulf Coast where it was abundant 20 years ago, and the species is declining rapidly along the California Coast.<sup>48</sup>

The primary problem for these birds has been their failure to reproduce adequately.<sup>49</sup> These species feed high in the food chain and biological concentration leads to high levels of DDT contamination (Supp. App. 157, 209; Bibli. 90, 161, 209). DDT is an inducer of liver enzymes that break down steroid sex hormones, including estrogen, which are responsible for various aspects of reproduction.<sup>50</sup> With

<sup>45</sup>Supp. App. 133,135,139,151,153,164,173,175,181,187,189, 192,201,210-14,217,220,223,242,246,249,252-54.; Bibli. 3,6,7,12-15,85-89,97,105,107,115,145,150,154,179,191-6,210-14,218,232, 233,236,256,257,260,265,274-80.

<sup>46</sup>Supp. App. 192; Bibli. 87,154.

<sup>47</sup>Supp. App. 151,173,189,211,217,220,242,249,252,253,254, Bibli. 87,88,105,150,179,211,218,232,233,256,274-280. Also see Index II-2, 3, 7-9, 11-14, 16, 55-72.

<sup>48</sup>Bibli. 323,327.

<sup>49</sup>Supp. App. 249; Bibli. 87,211,274.

<sup>50</sup>Supp. App. 187,198; Bibli. 42,112,145,171-72,274-76.

a diminished estrogen supply, the female bird no longer shows normal reproductive behavior.<sup>51</sup> Simultaneously, DDT and its metabolites inhibit the function of a crucial enzyme, carbonic anhydrase in the shell gland of the oviduct.<sup>52</sup> Since this enzyme is required for normal eggshell formation, DDT-contaminated birds lay eggs with abnormally thin shells, sometimes little more than membranes, that break prematurely in the nest and, of course, produce no chicks.<sup>53</sup> Many species of birds now lay eggs with shells 10 to 50 percent thinner than they were before the DDT era began during the 1940's.<sup>54</sup>

Unless the use of DDT is stopped, we can anticipate the suppression to very low levels, or the extinction, of many species of carnivorous birds.<sup>55</sup>

DDT also reduced reproductive success in fish, although the mechanism is different.<sup>56</sup> This problem was identified after DDT had been applied to the watersheds of several lakes in New York State.<sup>57</sup> Several years later it was realized that DDT had caused 100 percent mortality of lake

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<sup>51</sup>Supp. App. 198; Bibli. 274. DDT also causes breakdown of the male sex hormone testosterone (Supp. App. 187; Bibli. 42, 112,145).

<sup>52</sup>Supp. App. 249,252; Bibli. 274-6.

<sup>53</sup>Supp. App. 217,220,242; Bibli. 218,232,256.

<sup>54</sup>Supp. App. 151,189,253; Bibli. 88,150,277,323.

<sup>55</sup>App. 14; Supp. App. 135,151,192,214,249,253; Bibli. 7,87,88, 154,179,182,214,274,277,278. A second problem with many species of birds such as the robin, is widespread, direct mortality (as opposed to reproductive failure) resulting from the use of DDT. App. 14,29; Supp. App. 153,201,213,223; Bibli. 89,191-196,213,236.

<sup>56</sup>Supp. App. 239; Bibli. 244.

<sup>57</sup>Supp. App. 144; Bibli. 28.

trout fry. In fact, there has been no successful lake trout reproduction in these lakes for the past dozen years. Although DDT did not kill the adult fish, it killed the fry soon after they hatched from eggs with DDT-contaminated yolks.<sup>58</sup> DDT has caused reproductive failure among fish in other areas as well. For example, in Lake Michigan, 10 to 50 percent of the Coho salmon fry were killed by the general contamination of the lake with DDT,<sup>59</sup> and DDT has caused abnormal trout fry mortality in Canada<sup>60</sup> and New Zealand.<sup>61</sup>

The concentrations of DDT that have been shown under both controlled laboratory and field conditions to kill fish fry are now being approached, and in some cases equalled, in some of our major freshwater and marine fisheries (Supp. App. 247-48; Bibli. 272, 273, 306), endangering important sources of protein. Many fish from widespread areas show concentrations of DDT residues approaching those which have been demonstrated to cause abnormal fry mortality (App. 14,29; Supp. App. 137,194,247,248; Bibli 8, 156, 241,272,273,306).

DDT also causes high mortality rates among a large number of fish and other aquatic organisms (App. 14, 29; Supp. App. 150,166,241; Bibli 46,62,99,100,198,253). It disrupts insect communities and kills beneficial insects, including predatory and parasitic insects which control pests (App. 14,30; Supp. App. 166,278; Bibli. 100,267,324,325). DDT injures crustaceans such as crabs and shrimp (App. 14, 30;Supp. App. 241; Bibli. 77, 117, 253), and it can reduce the photosynthetic activity of phytoplankton, the organisms that form the base of all marine food chains (App. 14-15, 30; Supp. App. 215,255; Bibli. 215, 281).

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<sup>58</sup>App. 14, 29; Supp. App. 144,239-40; Bibli 28,244,245,306.

<sup>59</sup>Bibli. 317.

<sup>60</sup>Bibli. 47.

<sup>61</sup>Supp. App. 222; Bibli. 235.

The Mrak Report (see pp. 9-10, *supra*) supports the conclusions which Petitioners draw from the above evidence. Of greater importance here, the Respondents have confirmed Petitioners' points that DDT is contributing to the decline of certain species and that it causes death to non-target fish and birds (Statement 5, 13.; Supp App. 50,58). Nevertheless, Respondents have refused to conclude that DDT is an imminent hazard to fish and wildlife or the environment. Respondents' failure is unsupportable as a matter of law.

Respondents' excuses for their failure to conclude that DDT is an imminent hazard to fish and wildlife are unfounded. Respondents say, for example, that "in these instances of bird mortalities that have been attributed to the use of DDT in a treated area, the depopulations in the area have been temporary." (Statement 5; Supp. App. 50). Respondents, however, cite for this proposition an article which states that robins returned to DDT treated areas only after DDT application had ceased and been replaced by methoxychlor treatments (Index III-84). How temporary "depopulation" is, of course, varies with the severity of damage done and the resiliancy of the depressed population. Respondents' own evidence indicates there is nothing temporary about the decline as long as DDT remains in use.

Although Respondents admit that DDT causes "fish mortality and reproductive failures," they say that they know of no endangered species of fish as a result of DDT (Statement 5; Supp. App. 50). Respondents, however, have not dealt with Petitioners' point, that DDT is endangering whole fisheries; *i.e.*, populations of commercially valuable fish. Petitioners do not contend that DDT is endangering species of fish (Pet. Brief, 20; App. 14,29; Supp. App. 288-290; Mrak 208-210).

Respondents admit that DDT is interfering with the reproduction of certain birds and fish, but they later note that "[a] review of animal populations shows no overall decline but, to the contrary, the harvests of fish and wildlife populations are continually increasing." (Statement 6;

Supp. App. 51) Respondents, however, have cited only articles which do not support this proposition.<sup>62</sup> (In fact, landings of commercial fish and shellfish fell 0.6 billion pounds last year. p. 41, *Environmental Quality*, *supra*.)<sup>63</sup>

Respondents' reasons, in summary, for failing to conclude that DDT is an imminent hazard to fish and wildlife and the environment are based on nothing except irrelevant or unsupported assertions. The evidence of damage is clear and unrefuted. Respondents' failure to conclude that DDT is an imminent hazard to the public based on harm to fish and wildlife is clearly reversible error.

<sup>62</sup>Three of the references concern water fowl populations and show population declines, not increases (Index III-30, 31 and 32). One concerns falcons, but is dated 1942, preceding the use of DDT (Index III-34). Two concern big game, which are completely irrelevant to this case (Index III-33, III-35). One involved an inconclusive and unscientific report of bird watchers (Index III-36). One has absolutely nothing to do with population trends, but concerns the adverse effects of DDT on brook trout behavior (Index III-39). One indicates an increase in Great Lake fish harvests over the years (Index III-38), but does not take into account the problems plaguing that fishery as a result of DDT in recent years (see Bibli. 317).

<sup>63</sup>Petitioners have noted Respondents' assertion that "[t]he usefulness of DDT in the control of defoliating insects in the environment can be beneficial to wildlife by protecting their habitat." (Statement 6; Supp. App. 51) ) This assertion is unsupported by any reference.

In addition, Respondents suggest that substitutes for DDT are more toxic to bees, naming: Azodrin, Carbaryl, Malathion, and Parathion. There are other insecticides, however, that are less toxic than DDT: Methoxychlor, various oil sprays, pyrethrum, rotenone, and dylox. Many of the problems of bees caused by toxic insecticides can be avoided by proper timing of applications (see Bibli. 299).

Respondents state that DDT is "used to rid recreational areas of ticks, mosquitoes, and flies" (Statement 3, Supp. App. 48). Petitioners note that Secretary of the Interior, Walter J. Hickel, banned DDT from use on the 500 million or so acres under his jurisdiction on June 12, 1970 (Supp. App. 103). Thus, DDT has been banned from use in our National Parks and other prime recreational areas.

3. *Respondents are Unable to Justify Their Failure to Conclude that DDT is an Imminent Hazard on Other Grounds.*

As can be seen from the above, Respondents have not based their decision on evidence that DDT is not causing harm to fish and wildlife or on evidence that DDT is not a carcinogen. Respondents rely essentially on findings that DDT is needed (1) to control disease vectors and (2) to control agricultural pests. The facts are, however, that DDT is little used in this country except for cotton (Index IV-3, Supp. App. 113,118,121) and, as a result, most of Respondents' argument about DDT's essentiality is unfounded or irrelevant.

a. *DDT is Not Needed in the United States to Control Disease Vectors.*

Respondents state that "DDT has been widely used to protect man against a number of important arthropod-borne diseases, e.g., malaria, onchocerciasis, typhus, encephalitis, yellow fever, tick fever, bubonic plague, cholera and dengue fever."<sup>64</sup> This follows an earlier statement on the same page that "DDT has helped to keep insect-borne human diseases at a low incidence in the United States . . . ."<sup>65</sup>

Respondents then argue that the use of DDT to control insect-borne diseases such as malaria and typhus outweighs the danger of carcinogenesis, citing the Mrak Report.<sup>66</sup> The Mrak Commission, however, found in its Summary and Conclusions that:

"It is reported by well informed scientists that as far as insect vectors of disease are concerned there is none known which are normally susceptible to

<sup>64</sup>Statement 2-3; Supp. App. 47-48.

<sup>65</sup>Statement 2; Supp. App. 47.

<sup>66</sup>Statement 3; Supp. App. 48. Respondents also cite two articles that do not support the quoted proposition (Index II-4, II-15).



DDT that cannot be controlled with a substitute." Mrak 49; Supp. App. 283a.

Indeed, the facts are that DDT is not needed to control insect-borne diseases in the United States, as can be seen by a summary of the facts regarding each disease mentioned by Respondents:

*Malaria.* When DDT was introduced into the United States in the 1940's, it helped to eliminate malaria's last vestiges in the United States (Bibli. 328, 329). The only malaria in the United States today has been contracted in Southeast Asia and other malarious areas of the world (Bibli. 331). It now appears that there are substitutes for DDT (methoxychlor, dichlorvos, abate, malathion, etc.) for malaria control (Bibli. 328, 332, 333, 334).

*Typhus* was eliminated from the United States many years ago (Bibli. 335).

*Encephalitis* is a rare disease in the United States. It is satisfactorily controlled by Malathion (Bibli. 332, 333).

*Yellow Fever* last occurred in the United States in 1904. The yellow fever disease vector mosquito, *aedes aegypti*, can be controlled with abate, and a vaccine provides complete protection after one injection for at least ten years (Bibli. 336, 337).

*Tick Fever*, a rare disease in the United States, cannot be controlled by DDT (Bibli. 329, 331, 335).

*Bubonic Plague* is very rare in the United States (3 or 4 cases a year) and, in any event, is controlled far more efficiently by other means (Bibli. 335).

*Cholera* does not occur in the United States, and is rarely insect borne (Bibli. 329, 335).

*Dengue Fever* is not endemic to the United States (Bibli. 329, 335). It is carried by *aedes aegypti*, the yellow fever vector (see *Yellow Fever*, above).



*Onchocerciasis* does not occur in the United States (Bibli. 335). In Africa, the black fly vector is controllable with methoxychlor (Bibli. 338, 339, 340).

In summary, Respondents' alarms that DDT is needed to control disease vectors are not well founded and could hardly be used in any event as an argument against suspension of the domestic use for cotton or tobacco.

*b. DDT is Not Necessary for Food Crops and Other Farm Use in the United States.*

Respondents have stated that "DDT is as important to the farmer as penicillin is to the physician" (Statement 6; Supp. App. 51). In contrast, the Mrak Report states in its Summary and Conclusions:

"Although DDT is still involved in some of the international food production programs sponsored by U.S. agencies, there is a feeling that a withdrawal or systematic reduction of DDT would have a minimum effect." P. 50; Supp. App. 283b.

Respondents have grossly overstated the situation as they themselves suggest when they say: "Records of the Department indicate that there are about 65 other registered pesticides that will control one or more of the insects controlled by DDT." (Statement 6-7; Supp. App. 51-52).

The problem can best be put in its true perspective by referring to one of Respondents' own reports which Respondents rely upon for the proposition that DDT is as necessary as penicillin.<sup>67</sup> According to Respondents' report, farmers are the major domestic users of DDT (p. 2; Supp. App. 117). Only 2% of farm crop land in the United States, however, is treated with DDT (p. 6; Supp. App. 121) and DDT is being replaced for many uses because insects are

<sup>67</sup>Supp. App. 113-122; Index IV-3; U.S. Department of Agriculture Economic Report No. 158; April 1969, "DDT Used in Farm Production."

becoming resistant to it and because other insecticides cost less for certain control purposes (p. 2; Supp. App. 117). "Cotton growers use most of the DDT that farmers buy" (i.e., about three-fourths of the DDT used on farms) (pp. 3.6; Supp. App. 118,121). Even so, only about 38% of the cotton acreage is treated (p. 3; Supp. App. 118). Thus, cotton is the primary use of DDT in this country. It would seem, as a result, that the risks and benefits Respondents had to weigh pitted cancer and wildlife against cotton. Although cotton won the decision at Agriculture, that decision was clearly incorrect. Furthermore, the need for DDT on cotton is greatly in doubt.

While Respondents say there are no alternatives to DDT for the cotton bollworm (*Heliothis*) their own registrations list chemical alternatives including parathion, methyl parathion, azodrin, carbaryl, gardona, and several others (Index IV-9). The cotton bollworm is an insect that is not normally a pest because it is under heavy pressure from naturally occurring predacious insects (Bibli. 341; Supp. App. 280). The use of a broad spectrum poison such as DDT destroys these predators, releasing the bollworm from predation and elevating it to pest status (Bibli. 341; Supp. App. 280). The cotton bollworm problem, therefore, not only is not solved by DDT, but is often *caused* by DDT. Some studies actually show that the use of DDT and other insecticides gives a lower yield of cotton than occurs in untreated fields (Bibli. 341; Supp. App. 280). The most important control of cotton bollworm, in any event, is naturally occurring predators (Bibli. 342; Supp. App. 281).

DDT is no more needed for agricultural pests than it is for disease vectors. In any event, DDT's continued use for agricultural purposes (and in particular for such nonessential uses as tobacco, cotton and ornamentals) is unjustifiable in the face of its serious environmental damage and the human health hazards of carcinogenesis and mutagenesis.

## II

**RESPONDENTS HAVE ERRED IN DENYING PETITIONERS' REQUEST THAT THEY ISSUE NOTICES UNDER SECTION 4c OF THE FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT TO INITIATE CANCELLATION PROCEEDINGS FOR ALL REGISTRATIONS OF ECONOMIC POISONS CONTAINING DDT**

Petitioners have requested that Respondents initiate cancellation proceedings for all uses of DDT. Respondents have denied that request.<sup>68</sup> Respondents' denial is erroneous as a matter of law. Respondents' decision is based on an illegal procedure in lieu of and deferring Section 4c cancellation proceedings. In addition, as pointed out above (pp. 12-19, *supra*), Respondents have unlawfully shifted the burden of persuasion to Petitioners. Respondents' own statement, however, contains findings which require the initiation of cancellation procedures. Alternatively, the record compels such findings.

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<sup>68</sup> Respondents' actions, either viewed as "unlawfully withheld" or "unreasonably delayed" and "failing to act with reasonable dispatch," (see 5 U.S.C. § § 555(b), 706(2), Supp. V, 1969) amounts to the unlawful denial of relief sought by Petitioners. As this Court said in its opinion of May 28:

"When administrative inaction has precisely the same impact on the rights of the parties as denial of relief, an agency cannot preclude judicial review by casting its decision in the form of inaction rather than in the form of an order denying relief." *Environmental Defense Fund, Inc. v. Hardin, supra*, Slip Op. 10.

**A. Respondents' Decision Not to Issue Section 4c  
Notices is Based on Unlawful Procedures.**

FIFRA was passed in 1947 to protect the public from harmful or ineffective pesticides and other "economic poisons," *i.e.*, substances intended for pest or weed control.<sup>69</sup> FIFRA sets out standards and procedures with regard to pesticides to "protect the public"<sup>70</sup> and to "prevent injury to living man and other vertebrate animals, vegetation and useful invertebrate animals."<sup>71</sup>

Economic poisons—including DDT—are required to be registered with the Secretary of Agriculture prior to sale in interstate commerce.<sup>72</sup> They cannot, however, be registered unless they are properly labeled. Economic poisons are "misbranded" for these purposes if the label is not adequate, if complied with, to protect the public, or to prevent injury to man, animals, and the environment. If no label can be written which will prevent such injury, an economic poison is inherently misbranded and cannot be registered or sold in interstate commerce.<sup>73</sup>

<sup>69</sup>FIFRA § 2a; 7 U.S.C. § 135(a), 61 Stat. 163 (1947); H. Rept. No. 313, 80th Cong., 1st Sess. (1947); 109 Cong. Rec. 20079 (Statement of Senator Ellender), 88th Cong., 1st Sess. (1963). The Act was amended in 1964 to better protect the public by closing loopholes which had permitted manufacturers to market unsafe products. The amendment gave Agriculture effective means of refusing, canceling, and suspending registrations. *See, e.g.*, S. Rept. No. 573 (on S. 1605), 88th Cong., 1st Sess. (1963); H. Rept. No. 1125 (on H.R. 9739), 88th Cong., 2d Sess. (1964); Cong. Rec. 20079, 88th Cong., 1st Sess. (1963).

<sup>70</sup>FIFRA § 2 (z) (2) (c), 7 U.S.C. § 135 (z) (2) (c), 61 Stat. 166, as amended.

<sup>71</sup>FIFRA §§ 2 (z) (2) (d) and (g), 7 U.S.C. §§ 135 (z) (2) (d) and (g), 61 Stat. 166, as amended.

<sup>72</sup>FIFRA § 4 (a) - (c), 7 U.S.C. § 135b (a) - (c), 61 Stat. 167-168, as amended.

<sup>73</sup>FIFRA § 2 (z) (2) (c) & (d), 7 U.S.C. § 135 (z) (2) (c) & (d). *See also* 7 C.F.R. §§ 362.9, 362.10 (k), 362.105(c), 362.105(h), 362.106 (f) (4) (v), 362.108 (c) (6) and 362.121 (g).

Upon a preliminary determination that an economic poison is not in compliance with the provisions of FIFRA, a Section 4c notice is issued to the registrant.<sup>74</sup> The Section 4c notice issued upon such a preliminary finding triggers an administrative procedure which can lead to cancellation. The registrant can, under Section 4c, challenge the Secretary's preliminary determination through administrative procedures which include a reference to an advisory committee of qualified experts selected by the National Academy of Sciences and a public hearing before an examiner. At the end of such procedures, the Secretary decides whether or not to cancel the registration.

In the case at hand the Respondents have erred with regard to the cancellation procedures in two respects. First, they have decided questions which would normally be answered in Section 4c proceedings by recourse to an illegal non-statutory procedure. Second, as pointed out earlier (pp. 12-19, *supra*), they have illegally placed the burden of proof on Petitioners.

1. *Respondents are Making DDT Cancellation Decisions in an Unlawful Non-statutory Proceeding.*

Respondents apparently endorse a suggestion made nine months ago by the Mrak Commission that all uses of DDT in the United States should be eliminated within two years except those essential to the preservation of human health or welfare. The only legitimate way to determine what is essential for human health or welfare is by Section 4c proceedings. Furthermore, the only way to meet the two-

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<sup>74</sup> "... The Secretary, in accordance with the procedures specified herein, may suspend or cancel the registration of an economic poison whenever it does not appear that the article or its labeling... complies with the provisions of this Act. Whenever the Secretary... determines that registration of an economic poison should be canceled, he *shall* notify the... registrant of his action and the reasons therefor..." (Emphasis added) FIFRA § 4c.

year schedule is by initiating the proceedings at once upon an expedited schedule.<sup>75</sup>

The issuance of a Section 4c notice is not equivalent to a final determination that registration must be cancelled. Indeed, Congress, in reviewing the administration of FIFRA, stressed that the Secretary of Agriculture should issue a Section 4c notice "*whenever a reasonable question as to the safety of a registered product becomes apparent.*" "Deficiencies in Administration of the Federal Insecticide, Fungicide, and Rodenticide Act." H. Rept. 91-637, 91st Cong., 1st Sess., Nov. 13, 1969, p. 19 (emphasis in original).<sup>76</sup> In the course of the subsequent administrative proceedings, the Secretary of Agriculture has an opportunity to weigh considerations that compete with safety and then make a final determination on cancellation.

In this case, while the Respondents have concluded that DDT use should be ended except where "essential to the public health and welfare" (Statement 13; Supp. App. 58), they have also stated:

"[F]urther action with respect to cancellations should await completion of the use-by-use evaluations presently in progress." (Statement, p. 1; Supp. App. 46.)

Respondents further state, "There are some insects presently controlled by DDT for which currently there is no alterna-

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<sup>75</sup>See discussion at page 40, *infra*, of the House Government Operations Committee report that Respondents have not yet managed to complete a contested 4c proceeding. (Also see Petitioners' Brief at 13-14.) With regard to the four uses for which Respondents issued 4c notices on November 20, 1969, Respondents have not yet initiated a hearing requested by Lebanon Chemical Corporation on December 24, 1969.

<sup>76</sup>Reports of the House Government Operations Committee, while lacking the standing of legislative history, are relevant aids to statutory interpretation. See *Zabel v. Tabb*, No. 27,555 (5th Cir. July 16, 1970), Slip Op. at 32-33.

tive effective pesticide . . ." (Statement 7; Supp. App. 52) and "substitutes [for DDT] cannot be recommended without detailed time-consuming evaluations . . ." (Statement 8; Supp. App. 53). In conclusion no. 4 (Statement 13; Supp. App. 58), it is said, "There should be continuation of the comprehensive study of essentiality of particular uses and evaluations of potential substitutes."

Thus, Respondents have chosen to make "use-by-use" evaluations of DDT rather than initiate Section 4c proceedings.<sup>77</sup>

The "use-by-use" procedure is not provided for in FIFRA and is not the proper way to make cancellation decisions. It is particularly inappropriate when, as here, a serious question as to the safety of a registered product has been raised. As the Court pointed out to Respondents in its May 28 opinion:

"But the Statutory scheme of the FIFRA itself contemplates a lengthy inquiry into the conditions for the safe use of an economic poison before its registration may finally be cancelled. Since the issuance of cancellation notices merely triggers that administrative mechanism, it is questionable whether the Secretary may properly defer the decision to issue notices in order to engage in a preliminary inquiry not contemplated by the Statute." *Environmental Defense Fund, Inc. v. Hardin, supra*, Slip Op. 12.<sup>78</sup>

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<sup>77</sup>We note that Respondents issued notices of cancellation for 30 uses of DDT on May 6, 1970. (Statement 11, Supp. App. 56.) These 30 did not involve any significant uses of DDT. *The New York Times* reported on July 20, 1970, that Dr. Bayley admitted that DDT "had not been extensively used on these crops" and that the cancellation order was mostly a measure to "get our house in order" (Supp. App. 125).

<sup>78</sup>Also see discussion in Petitioners' Brief at 13-14, and H. Rept. 91-637 at 15, 49-50.



The preliminary inquiry which the Court criticized on May 28, 1970, has apparently come to an end.<sup>79</sup> Whatever the Respondents' decisions as a result of "time consuming" use-by-use evaluations, however, all uses of DDT should be subject to Section 4c proceedings because of the serious question of DDT's safety raised by Petitioners.

It appears from the Statement that Respondents will not initiate Section 4c proceedings with regard to many uses of DDT no matter what the evidence of harm because Respondents feel the farmer needs DDT for those uses.<sup>80</sup> Such a determination not to initiate Section 4c cancellation proceedings is manifestly improper. The determination as to whether or not Section 4c notices should issue should be based on the existence or nonexistence of evidence which raises a substantial doubt that DDT complies with FIFRA standards requiring the "protection of the public" and the prevention of "injury to living man and other vertebrate animals, vegetation and useful invertebrate animals." The evaluation of how essential DDT is for any use, the value of that use, and alternatives to DDT would be proper thereafter during the Section 4c cancellation proceedings. To allow the need for any use to be the criterion for the issuance of Section 4c notices is to decide in advance

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<sup>79</sup>As will be recalled, that inquiry was based on a notice published in the Federal Register on November 25, 1969 (App. 43-45). Respondents state:

"In April and May 1970, a committee of outside experts appointed by the Department of Agriculture reviewed data and information respecting essential uses of products containing DDT, especially comments regarding essential uses submitted pursuant to the Federal Register Notice of November 25, 1969. The report and recommendations of that committee was completed in June 1970 and is being considered, along with all comments submitted in response to the Federal Register Notice, and all other relevant information." (Statement 11; Supp. App. 56-57.)

<sup>80</sup>See pp. 32-34, *supra*.



the very matters for which cancellation proceedings were provided.

The Respondents' apparent insistence on deciding certain DDT cancellation matters outside the four corners of the Section 4c proceeding is only part of a larger pattern of Respondents to avoid effective use of Section 4c proceedings. As the House Government Operations Committee reported, Respondents "never secured cancellation of a registration in a contested case" (emphasis in original) and that "when registrants receiving cancellation notices requested hearings or studies, prosecution of the cancellation was halted and the product left on the market."<sup>81</sup> With regard to initial registrations, Respondents have allowed the registration of at least 1,600 products over the objections of the Public Health Service without initiating Section 4c proceedings.<sup>82</sup> Respondents' position in this case, therefore, when put in the context of the actual way Respondents administer FIFRA, would deny to Petitioners their right to have the matter of cancellation decided in Section 4c proceedings.

The Respondents' action in this respect is analogous to that of the Respondents in *Environmental Defense Fund, Inc. v. United States Department of Health, Education and Welfare*, *supra*, where Judge Wright observed:

"The administrative process, the process which Congress intended to focus on and illuminate these problems, has not been permitted to begin. In our view, the Petition does comply with all statutory prerequisites, and this case must, therefore, be remanded to the Secretary of HEW with directions to file Petitioners' proposal and to publish it in the Federal Register, as provided in 21 U.S.C. § 346a (d)(1)." Slip Op. 12.

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<sup>81</sup> H. Rept. 91-637, *supra*, at 15-16.

<sup>82</sup> H. Rept. 91-637, *supra*, at 14, 36-37.

Petitioners have filed a sufficient petition and are entitled to have Respondents initiate the administrative procedures provided by Congress.

Because their decision in this case and their administrative practice follows a non-statutory procedure instead of the statutory procedure provided by Congress, Respondents have fallen into the same error which recently led this Court to reverse a decision of the Civil Aeronautics Board. *Moss v. Civil Aeronautics Board*, No. 23,627 (July 9, 1970). In that decision, the Court refused to allow the C.A.B. to follow a nonstatutory rate-setting procedure which avoided hearings and the participation of the public. The situation is essentially the same in this case, where Respondents are deciding DDT cancellation matters by a nonstatutory proceeding under which formal hearings and decisions are not implemented. Respondents' procedure for dealing with cancellations is clearly unlawful both in this case and as a general practice.

2. *Respondents' Refusal to Issue Section 4c Notices is Based on Their Unlawful Shifting of the Burden of Proof to the Petitioners.*

Petitioners have shown, in their discussion of suspension, that the Respondents have shifted the burden of proof to Petitioners (pp. 12-19, *supra*). The principle is exactly the same regardless of whether cancellation is initiated by suspension or simply by the issuance of Section 4c notices without suspension. Respondents have reviewed the petition and evidence of Petitioners as though they were making a final determination of cancellation after administrative hearings. Furthermore, they have erroneously assumed that Petitioners had the burden of persuading them that DDT does not comply with FIFRA standards. In fact, the law places the burden on the manufacturers to come forward and show that their product is safe. Therefore, any determination not to initiate cancellation proceedings for DDT, whether by suspension or by the issuance of Section 4c notices, is erroneous as a matter of law and should be reversed.

**B. Respondents are Compelled to Initiate Section 4c Cancellation Proceedings by (1) Their Own Findings, and (2) the Evidence of Harm Caused by DDT.**

*1. Respondents' Findings Compel the Initiation of Cancellation Proceedings.*

Upon a preliminary determination that an economic poison is not in compliance with FIFRA standards, Section 4c of FIFRA provides that a notice shall be issued to the registrant.<sup>83</sup> Such a determination is, of course, based on findings that the economic poison in question is not in compliance with FIFRA standards. The record in this case is clear that Respondents have in effect made the findings with regard to that evidence which compels the conclusion or determination that Section 4c proceedings should be initiated.

The Respondents stated on November 20, 1969, that the widespread use of DDT should be discontinued.<sup>84</sup> Respondents' June 29, 1970 Statement in effect confirms this finding and, in addition, confirms all of the key points of Petitioners' original petition to Agriculture. In particular, Respondents confirm that DDT is persistent,<sup>85</sup> that DDT has accumulated in most forms of life, including man.<sup>86</sup>

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<sup>83</sup>See pp. 35-37, *supra*.

<sup>84</sup>The Respondents specifically stated in the Section 4c notice concerning four uses of DDT and in a Federal Register Notice concerning other uses of DDT that:

"Current information on levels of DDT in the environment warrant the discontinuation of widespread use of DDT when such use is not essential in the production of food or the protection of health." (App. 41, 43-44.)

<sup>85</sup>"Its chemical activity may persist in the environment for several years after it has been applied" (Statement 2; Supp. App. 47).

<sup>86</sup>"It accumulates to varying levels in the tissues of animals, including man." (Statement 2; Supp. App. 47) "DDT is present in most forms of life" (Statement 5; Supp. App. 50).

that DDT is carcinogenic in test animals,<sup>87</sup> that DDT is causing the decline of certain species,<sup>88</sup> and that it causes death to non-target fish and birds.<sup>89</sup>

Respondents' own findings, therefore, are that DDT does not comply with FIFRA standards designed to "protect the public" and to protect "living man, vertebrate animals and useful invertebrate animals" (see p. 35, *supra*). Thus, DDT is an inherently "misbranded" product (see p. 36, *supra*) and cancellation proceedings should be initiated by issuance of Section 4c notices. There is no reason for further delay.

In their Summary of Conclusions (Statement 13; Supp. App. 58). Respondents have in effect taken the position that DDT is not causing enough harm to be considered an "imminent hazard," the standard for purposes of suspension. They admit, however, "that the presently available scientific evidence indicates that there are some adverse effects upon certain species of fish and wildlife as a result of DDT" and "that the use of DDT should continue to be reduced in an orderly, practicable manner which will not deprive mankind of uses which are essential to public health and welfare. . . ." This conclusion in effect concedes the necessity to at least issue Section 4c notices. The only orderly, practicable and lawful manner for achieving this goal is by the method Congress provided—proceedings following issuance of Section 4c notices.

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<sup>87</sup>"There are reports of carcinogenicity resulting from the administration of large doses of DDT in test animals" (Statement 3; Supp. App. 43).

<sup>88</sup>"There is information which suggests that [DDT] is interfering with the reproduction of certain species of raptorial birds and may be a contributor, among other factors, to the decline of some of these species." (Statement 5; Supp. App. 50).

<sup>89</sup>"There have been instances in which DDT in lakes and streams has been a factor in fish mortality and reproductive failures." "High concentrations of DDT in other birds can cause death . . . ." (Statement 5; Supp. App. 50).

2. *The Evidence Compels a Finding that DDT is Not in Compliance with FIFRA Standards.*

The evidence before the Respondents conclusively establishes that DDT does not comply with FIFRA standards and compels a finding to that effect. Such a finding would further compel (see pp. 43-44, *supra*) a conclusion and determination that Section 4c cancellation proceedings should be initiated.

Petitioners have set forth in the Statement of the Case and in their discussion of suspension the evidence that DDT is causing widespread harm to non-target organisms, that DDT is causing cancer and other health problems and that it is now a general contaminant of the food and tissue of mankind (pp. 9-11, 20-24, *supra*). Also, we have shown that Respondents neither cite nor refer to any evidence in the record to controvert the above propositions.

At pages 12, 31 above, we noted the apparent reasons with which Respondents justify their refusal to issue Section 4c notices. As for the need for DDT to control insect disease vectors, we have shown (see pp. 31-33, *supra*) that DDT is not needed in the United States to control disease vectors. We have likewise discussed the need for DDT for farm use and revealed that DDT use in the United States is primarily for cotton and that the need for that use is dubious (see pp. 33-34, *supra*).

In summary, it is clear from the evidence that DDT does not meet the standards in Sections 2(z)(2)(c), (d) and (g) of FIFRA which protect the "public" and "man, vertebrate animals, vegetation and useful invertebrate animals" from injury. The record will not support a finding that DDT complies with such standards regardless of the standard of review. As a result, Respondents' failure to issue Section 4c cancellation notices under these circumstances and require the manufacturers to come forward and establish the safety of DDT is reversible error.

# CONCLUSION

For all the reasons stated herein, Petitioners respectfully request that this Court grant the following relief:

(a) that the Respondents' denial of the Petition of October 31, 1969, be set aside; and

(b) that the Respondents be ordered to suspend immediately the registrations of all economic poisons that contain DDT, and issue Section 4c notices initiating cancellation proceedings.

Respectfully submitted,

JAMES W. MOORMAN  
CHARLES R. HALPERN

2008 Hillyer Place, N.W.  
Washington, D.C. 20009

*Attorneys for*  
*Environmental Defense Fund,*  
*Incorporated,*  
*Sierra Club,*  
*West Michigan Environmental*  
*Action Council,*  
*National Audubon Society, and*  
*Izaak Walton League of America*

EDWARD LEE ROGERS

Environmental Defense Fund, Inc.  
P. O. Drawer 740  
Stony Brook, New York

EDWARD BERLIN

Berlin, Roisman and Kessler  
1910 N Street, N.W.  
Washington, D.C. 20036

*Attorneys for*  
*Environmental Defense Fund,*  
*Incorporated*

August 10, 1970





BRIEF FOR THE RESPONDENTS

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IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 23813

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ENVIRONMENTAL DEFENSE FUND, INCORPORATED,  
ET AL.,

Petitioners

v.

CLIFFORD M. HARDIN, SECRETARY OF AGRICULTURE,  
ET AL.,

Respondents

---

ON PETITION FOR REVIEW OF AN ORDER OF THE  
SECRETARY OF AGRICULTURE

---

WILLIAM D. RUCKELSHAUS,  
Assistant Attorney General,  
ALAN S. ROSENTHAL,  
Attorney,  
Department of Justice,  
Washington, D. C. 20530.

CHARLES W. BUCY,  
Assistant General Counsel,  
RAYMOND W. FULLERTON,  
Attorney,  
Department of Agriculture,  
Washington, D. C. 20250.

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IN THE UNITED STATES COURT OF APPEALS  
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ENVIRONMENTAL DEFENSE FUND, INCORPORATED,  
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ON PETITION FOR REVIEW OF AN ORDER OF THE  
SECRETARY OF AGRICULTURE

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BRIEF FOR THE RESPONDENTS

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COUNTER-STATEMENT OF THE ISSUES

1. Whether Section 4 of the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 135b(d), confers direct review jurisdiction upon a court of appeals over decisions of the Secretary of Agriculture with respect to the issuance of notices of cancellation of economic poison registrations and the interim suspension of such registrations.

2. Whether the Secretary's decision not to suspend an economic poison registration is "agency action [which] is committed to agency



discretion by law" within the meaning of Section 10 of the Administrative Procedure Act.

3. Whether, in any event, there is a rational foundation for the Secretary's conclusion that no DDT registration should be suspended at this time and that further action with respect to cancellations of DDT registrations should await completion of the use-by-use evaluations presently in progress.\*

#### STATUTES INVOLVED

There are set forth in the Statutory Appendix to this brief the pertinent provisions of the Administrative Procedure Act (5 U.S.C. [Supp. IV] 701(a)(2), 706, 1005(a)), and of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135(z)(2)(c), 135(z)(2)(d), 135(z)(2)(g), 135b(c), 135b(d), 135f, 135g).

#### COUNTER-STATEMENT OF THE CASE

##### I. STATUTORY AND REGULATORY BACKGROUND

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. 135-135k, was enacted in 1947, and was amended in 1959 and in 1964.<sup>1/</sup> The statute, as amended, gives the Secretary of Agriculture

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\* This case was before the Court on petitioners' motion for expedited procedure and on respondents' motion to dismiss. See opinion of May 28, 1970.

<sup>1/</sup> 61 Stat. 163-173; 73 Stat. 286-288; 78 Stat. 190-193.



exclusive jurisdiction with respect to the registration of an economic poison.<sup>2/</sup> Registration is a precondition to the interstate distribution of an economic poison, 7 U.S.C. 135a. Any person who violates the provisions of the Act is amenable to criminal penalties, 7 U.S.C. 135f; and economic poisons moved interstate in contravention of the statutory prescriptions are subject to seizure, 7 U.S.C. 135g. The primary concern under the FIFRA is the public safety and welfare,<sup>3/</sup> and Section 4c of the Act vests discretion in the Secretary to issue a notice of cancellation when he "determines that registration of an economic poison should be cancelled." 7 U.S.C. 135b(c). Section 4c also grants the Secretary discretionary authority to issue an interim emergency order suspending the registration of an economic poison when he finds that such action is necessary to prevent an imminent hazard to the public.

Comprehensive administrative procedures are available to a registrant - i.e., manufacturer of an economic poison - whenever the Secretary suspends or cancels a registration. 7 U.S.C. 135b(c). A registrant who receives a notice of cancellation or a suspension order may request the appointment of a special scientific advisory committee constituted of

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<sup>2/</sup> The term "economic poison" is defined in the Act as "(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the Secretary shall declare to be a pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant." 7 U.S.C. 135(a). DDT is used to prevent, destroy, and mitigate insects, rodents and virus vectors, therefore, it is an economic poison subject to the provisions of the Act.

<sup>3/</sup> See, e.g., H. Rep. No. 1125, 88th Cong., 2d Sess. (1964); 110 Cong. Rec. 2948-49, 7189 (1964).

experts selected by the National Academy of Sciences to study the matter. The advisory committee must complete its independent study and submit its report and recommendations to the Secretary within 60 days;<sup>4/</sup> and, within 90 days of the receipt of the advisory committee report, the Secretary must "make his determination and issue an order, with findings of fact, with respect to the registration of the article and notify the \* \* \* registrant." Ibid. The registrant may then file objections and request a public administrative hearing; and, whenever a registration is suspended, the registrant is entitled to an expedited hearing. Within 90 days of the completion of the hearing "the Secretary shall evaluate the data and reports before him, act upon \* \* \* [the registrant's] objections and issue an order granting, denying, or canceling the registration or requiring modification of the claims or the labeling." Ibid.

The final order of the Secretary must be based on a consideration of the entire record developed during the adjudicatory proceeding, including the recommendations of the advisory committee, "and shall set forth detailed findings of fact upon which the order is based." Final orders - viz., orders emanating from a matter fully ventilated at an administrative hearing - "shall be subject to judicial review, in accordance with the provisions of section (d)" of Section 4. 7 U.S.C. 135b(c). That subsection, 7 U.S.C. 135b(d), in turn provides that in "a case of actual controversy as to the validity of any order under this section, any person who

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<sup>4/</sup> The Secretary may extend the period for advisory committee consideration an additional 60 days.

will be adversely affected by such order may obtain judicial review by filing in the United States court of appeals for the circuit wherein such person resides or has his principal place of business, or in the United States Court of Appeals for the District of Columbia Circuit, within sixty days after the entry of such order, a petition praying that the order be set aside in whole or in part." 7 U.S.C. 135b(d). Appellate review of a final order is based on the administrative record compiled during an adjudicatory hearing, and the final order of the Secretary "shall be sustained if supported by substantial evidence when considered on the record as a whole \* \* \*." Ibid.

## II. THE FACTS OF THIS CASE

Petitioners seek review by this Court of a purported "order" of the Secretary of Agriculture of the United States declining to exercise the discretion vested in him by Section 4c of the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. 135b(c), to suspend immediately the registrations of all DDT products. Petitioners also maintain that the Secretary erred when he did not issue notices of cancellation relative to all DDT registrations pursuant to their request.

In October 1969, four organizations interested in the environment (hereafter sometimes collectively EDP) requested the Secretary "to take immediate action to ban the use of DDT" (App. 1). The principal charges against DDT elaborated in the petitioners' request to the Secretary were (1) that "alternative pesticides and procedures that are of equal effectiveness but cause less damage are now available," (2) that "DDT and its

residues cause \* \* \* serious environmental effects by virtue of the great variety of their biological activity within living systems," and (3) that DDT "is a carcinogenic or cancer-causing agent." App. 12, 15. In connection with these assertions, petitioners claimed that the "overwhelming scientific evidence establishes that DDT is a cancer-causing agent, is injurious to animal, bird and fish populations and is causing serious ecological damage." App. 17. Specifically, the organizations request that the Secretary "by order, immediately, (1) suspend the registration of all economic poisons that contain DDT; and (2) issue Notices of Cancellation for all registered economic poisons that contain DDT, affording petitioners an opportunity to participate fully in any administrative proceedings held following the issuance of notices of cancellation including the right to adduce evidence, to rebut and to cross-examine." App. 18-19.

For many years, scientists of the Department of Agriculture have been diligently monitoring the use of DDT in relation to the public health and welfare. In this regard, the Secretary has been guided by the H.E.W. Secretary's Commission on Pesticides and Their Relationship to Environmental Health (Mark Report) recommendation to "eliminate within 2 years [of November 1969] all uses of DDT and DDD in the United States, excepting those uses essential to the preservation of human health or welfare and approved unanimously by the Secretaries of the Departments of Health, Education, and Welfare; Agriculture; and Interior."

On November 20, 1969, wholly independent of EDF's requests, the Secretary issued notices of cancellation of the registrations of DDT

products for (1) all uses on shade trees, including elm trees for control of the elm bark beetle which transmits the Dutch elm disease; (2) all uses on tobacco; (3) all uses in or around the home except limited uses for control of disease vectors as determined by public health officials; and (4) all uses in aquatic environments, marshes, wetlands, and adjacent areas, except those which are essential for the control of disease vectors as determined by public health officials. 34 F.R. 18827.

In addition, the Secretary announced that he was considering issuing notices of cancellation with respect to all other DDT uses that are not "essential in the protection of human health and welfare and only those uses for which there are no effective and safe substitutes for the intended use will be continued."<sup>5/</sup> Ibid.

On December 11, 1969, Dr. Ned D. Bayley, Director of Science and Education, Department of Agriculture, advised petitioners' counsel by letter of the action which that Department was taking with respect to the matter of persistent pesticides and environmental protection. The letter made reference, inter alia, to the notices of cancellation of some DDT registrations which had already been issued and to the fact that cancellation of other DDT registrations was being considered. App. 34-35.

<sup>5/</sup> The public was invited to comment with regard to the proposed cancellation action, and the Department received numerous recommendations regarding essential uses in response to the invitation. In April and May, 1970, an independent committee of scientists reviewed the data regarding essential uses and on June 10th the committee submitted its final report to the Department. On August 18, 1970, after a thorough, comprehensive evaluation, the Department issued notices of cancellations with respect to the use of DDT on 4 species of livestock; and foliar applications on 50 edible crops and 5 forest trees, and commercial plantings of flowers, ornamental plants, lawn and ornamental turf areas. The Department also announced that "final determinations have not been made concerning the essentiality of the other uses of DDT."

On December 29, 1969, EDF filed a petition in this Court seeking judicial review of Dr. Bayley's letter. The jurisdiction of this Court was invoked under Section 4d of the Act, 7 U.S.C. 135b(d). On January 12, 1970, the Secretary moved to dismiss the petition for lack of jurisdiction, principally on the grounds that the letter did not constitute a final order within the contemplation of the statute and that a decision not to suspend or cancel a registration is a matter committed to unreviewable agency discretion by law.

On May 28, 1970, this Court denied the motion to dismiss for lack of jurisdiction. Determining, however, that "meaningful appellate review of the refusal to suspend DDT's registration is impossible in the absence of any record of administrative action," the Court remanded to the Secretary to permit him "to provide us, within thirty days, with the record necessary for review." Slip op., p. 11. The Court directed the Secretary to make "a fresh determination on the question of suspension, or \* \* \* [to provide] a statement of reasons for his silent but effective refusal to suspend the registration of DDT" and to "decide on the record whether to issue the remaining requested cancellation notices, or explain the reasons for deferring the decision still further." Slip op., pp. 11-12.

In compliance with the Court's order, a re-evaluation of the status of DDT registrations was undertaken by 14 scientists, possessing on a collective basis an extensive academic and vocational background in such relevant fields as pharmacology, toxicology, entomology, chemistry



(including biochemistry), zoology, animal husbandry, and wildlife research.<sup>6/</sup> On June 29, 1970, Dr. Bayley, acting for the Secretary, filed with this Court (1) a copy of the scientific data and information that constituted the basis for the Secretary's decision, and (2) a statement of the results of the re-evaluation of registrations of products containing DDT, which had led to the decision "that there should be adherence to the prior determination that no DDT registration should be suspended at this time, and that further action with respect to cancellations should await completion of the use-by-use evaluations presently in progress." Supp. App. 46. Based upon an in-depth analysis of voluminous scientific literature and information regarding DDT, Dr. Bayley concluded "(1) that the scientific evidence now available does not establish that the use of DDT constitutes an imminent hazard to human health; (2) that the presently available scientific evidence indicates that there are some adverse effects upon certain species of fish and wildlife \* \* \* but that such effects do not constitute an imminent hazard to fish and wildlife or the environment; (3) that DDT has indisputably important and beneficial uses in connection with human health and agriculture, and there are not yet available suitable substitutes for all essential uses; (4) that the use of DDT should continue to be reduced in an orderly, practicable manner which will not deprive mankind of uses which are essential to the public

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<sup>6/</sup> A list of these scientists has been submitted to the Court, along with the curriculum vitae of each.



health and welfare; \* \* \* and (5) that, while the suspension of any DDT registration is not warranted at this juncture, there should be continuation of the review of the possible effects (both beneficial and deleterious) of DDT." Supp. App. 58. Additionally, the Court was advised that the Department of Agriculture "is presently conducting a thorough, active evaluation with respect to each use of every registered product that contains DDT." Supp. App. 59.

#### ARGUMENT

##### I.

#### THIS COURT LACKS JURISDICTION OVER THE PETITION FOR REVIEW

In its May 28, 1970, opinion, this Court rejected the Secretary's contention that the direct review jurisdiction conferred upon the courts of appeals by Section 4d of the FIFRA is limited to orders which are entered by the Secretary at the conclusion of the administrative proceedings prescribed by Section 4c with respect to the proposed denial or cancellation of an economic poison registration. In doing so, however, the Court did not discuss the basis assigned by the Secretary for his position on the jurisdictional issue. In the circumstances, we feel justified in reasserting that position and in requesting the Court to re-examine its conclusion that Section 4d confers direct review jurisdiction over the present petition for review, since the petition does not seek review of a Section 4c order denying or cancelling a registration.

1. The May 28, 1970, opinion noted that Section 4d provides for judicial review "in a case of actual controversy as to the validity of any order under this section." Slip op., p. 8, n. 21. The Court seemingly failed, however, to give any consideration to the balance of Section 4d which, we submit, illuminates the legislative understanding as to what Congress deemed to constitute a reviewable "order under [Section 4]."

a. After setting forth the venue requirements and specifying the time and manner of filing and service of the petition for review, Section 4d provides that, upon receipt of service, "the Secretary shall file in the court the record of the proceedings on which he based his order, as provided in section 2112 of Title 28."<sup>7/</sup> It goes on to stipulate that "the findings of the Secretary with respect to questions of fact shall be sustained if supported by substantial evidence when considered on the record as a whole, including any report and recommendation of an advisory committee." The court is authorized to order additional evidence to be taken before the Secretary, "to be adduced upon the hearing in such manner and upon such terms and conditions as to the court may seem proper, if such evidence is material and there were reasonable grounds for failure to adduce such evidence in the proceedings below." And the Secretary is empowered to "modify his findings as to the facts and order by reason of the additional evidence so taken"; with the proviso that he "shall file with the court such modified findings and order."

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<sup>7/</sup> 28 U.S.C. 2112 defines the record as comprising the order sought to be reviewed, "the findings or report upon which it is based, and the pleadings, evidence, and proceedings before the agency \* \* \*."

Thus, Section 4d leaves no doubt as to the kind of order which Congress contemplated would be subject to direct review in a court of appeals: viz., those orders which (i) are based upon a formal "record of proceedings" (to be filed by the Secretary in the court of appeals); and (ii) are accompanied by findings of the Secretary with respect to questions of fact (to be sustained if supported by substantial evidence when considered on the record as a whole, including any report and recommendation of an advisory committee).

b. There is, of course, only one type of order entered by the Secretary under Section 4 which is required to be accompanied by findings on questions of fact and to be based upon substantial evidence appearing in a record which would include a report and recommendation of an advisory committee. That is the final order entered by the Secretary after the conclusion of the proceedings specified in Section 4c. Those proceedings include (i) the submission of the matter to an advisory committee; and (ii) if so requested by the applicant for registration or the registrant, the conduct of a public hearing following the rendition of the Secretary's initial determination (which, in turn, follows his receipt of the advisory committee's report and recommendations). Section 4c expressly states that, within 90 days after the completion of the public hearing, "the Secretary shall evaluate the data and reports before him, act upon [the objections to the Secretary's initial order] and issue an order granting, denying, or canceling the registration \* \* \*." The Section goes on to provide that "such order shall be based only on substantial evidence of record at such

hearing, including any report, recommendations, underlying data, and reason certified to the Secretary by an advisory committee, and shall set forth detailed findings of fact upon which the order is based."

In sharp contrast, Section 4 contains no provision at all for the entry of any order by the Secretary in connection with the granting or denial of requests that he issue a notice of cancellation on a particular economic poison, <sup>let alone</sup> ~~but possibly only~~ for the entry of an order based upon findings on questions of fact and a formal administrative record including the action of an advisory committee. Moreover, while the Secretary is authorized by Section 4c (but not directed, see pp. 17-24, infra) to issue an interim order suspending pendente lite a registration "when he finds that such action is necessary to prevent an imminent hazard to the public," there is absolutely no provision made for the development of an administrative record in connection with the Secretary's exercise of his discretion in this regard.

The short of the matter is that Section 4d was tailor-made to fit judicial review of Section 4c final orders on the cancellation or denial of registrations. On the other hand, its requirements have no meaning at all as applied to any other form of administrative action taken under or authorized by Section 4. For example, how could the Secretary possibly comply with the mandatory requirement of filing in the court "the record of the proceedings on which he based his order" with respect to orders (or administrative action not involving an order) which Section 4c does not

stipulate must be based on a "record of proceedings"?<sup>8/</sup> And how does a court of appeals apply the mandated test of "substantial evidence when considered on the record as a whole, including any report and recommendation of an advisory committee" to administrative orders or actions which (1) are not required by the statute to be based upon formal findings or substantial evidence in a formal record; and (2) in no circumstances involve advisory committee consideration?<sup>9/</sup>

2. Although we think the above considerations dispositive, Section 4 contains still another clear manifestation of a legislative purpose that only Section 4c final orders on the denial or cancellation of registrations are to be directly reviewable by a court of appeals under the special judicial review provisions of Section 4d. Immediately after authorizing the Secretary to issue interim suspension orders, Section 4c states

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8/ It should go without saying that the material which has been furnished to the Court by the Secretary in compliance with its May 28, 1970, order in no way constitutes a "record of proceedings" within the meaning of either Section 4d of the FIFRA or 28 U.S.C. 2112. Once again, there were no formal administrative proceedings on any of the matters raised by this petition for review - and none was required. What has been supplied the Court - at its direction - is simply the documentary matter upon the basis of which the Secretary informally reached his conclusions respecting the issuance of notices of cancellation and of interim suspension orders.

9/ In this connection, as we show below, what petitioners seek here is review of an administrative function analogous to rule making. Since it is not required by statute to be based upon the record of an agency hearing, the review called for by the APA is not based upon the "substantial evidence" test but, rather, upon the "arbitrary and capricious" standard. See pp. 27-31, *infra*. The same is not true, of course, respecting the Section 4c final orders to which the Section 4d review provisions are addressed exclusively. As to such orders the APA - in common with Section 4d - specifies substantial evidence review; i.e., Section 4d simply reiterates the APA provisions relating to scope of review.

expressly that "final orders of the Secretary under this section shall be subject to judicial review, in accordance with the provisions of [Section 4d]" (emphasis supplied).

We fail to see how this explicit and unequivocal reference to the reviewability under Section 4d of final orders - coming, as it does, right after the authorization to the Secretary to issue interim orders - can be reconciled with the petitioners' insistence that Section 4d permits direct review in a court of appeals of any Section 4c order, whether final or not. We think it obvious that, had Congress desired to make the interim suspension orders (for which it had just made provision) subject to Section 4d review on the same basis as final orders, it would not have referred to the reviewability solely of "final orders."

3. For both of the above reasons, we respectfully submit that, when read in their entirety, Sections 4c and 4d convey the unmistakable message that it is solely final Section 4c orders - entered on the basis of formal findings derived from a formal record of proceedings - that are within the ambit of Section 4d. Assuming that other types of administrative action under Section 4c - such as the issuance or non-issuance of notices of cancellation or interim suspension orders - are subject to judicial review at all, that review must be sought initially in a district court.

It is no answer to suggest that the result of this conclusion is a division between two courts of the review of the various orders involved in a single administrative proceeding. Even assuming that such a division



of responsibility could be said to be undesirable, it is for Congress to decide the extent to which the courts of appeals are to be bestowed with direct review jurisdiction. Here, as we have shown, the legislative judgment was that only final Section 4c orders should be reviewed directly by a court of appeals. Whether one agrees with that judgment or not, it should be respected.

In actuality, we believe the congressional decision (explicit in Section 4c and implicit in Section 4d) to be perfectly sound. As a general proposition, the courts of appeals are called upon to review administrative action directly - i.e., without the intervention of a district court - only where that action has been taken on the basis of a formal administrative record (usually developed at least in part at a hearing) and is required to be accompanied by formal findings derived from that record. In such circumstances, of course, a court of appeals is fully able to perform the review function of determining whether the administrative action is consistent with law and whether the critical factual findings are supported by substantial evidence. But it is quite a different matter for a court of appeals to undertake ab initio to pass judgment upon administrative action which is not required to be grounded upon either findings or a record. This is especially so in view of the facts (a) that a court of appeals does not take evidence; and (b) that appellate counsel for an administrative agency are precluded from offering "post hoc



rationalizations for agency action." Burlington Truck Lines v. United States, 371 U.S. 156, 168.<sup>10/</sup>

## II.

### THE SECRETARY'S DECISION NOT TO ISSUE INTERIM SUSPENSION ORDERS IS NOT SUBJECT TO JUDICIAL REVIEW

Even if, contrary to the foregoing, Section 4d review were not restricted to final orders under Section 4c, there still would not be judicial review in this Court of the Secretary's decision not to enter interim suspension orders as to registrations of DDT.

Section 10 of the Administrative Procedure Act, 5 U.S.C. 701(a), expressly excepts from judicial review "agency action [which] is committed to agency discretion by law." Section 4c of FIFRA provides that "the Secretary may, when he finds that such action is necessary to prevent an imminent hazard to the public, by order, suspend the registration of an economic poison immediately" (emphasis supplied). We submit that the legislative choice of the word "may" reflects that the Secretary has been given, by law, the unreviewable discretion not to enter an interim suspension order.

In holding in its May 28, 1970, opinion that "although the FIFRA provides that the Secretary 'may' suspend the registration of an economic poison \* \* \* his decision is not thereby placed beyond judicial scrutiny,"

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<sup>10/</sup> This Court in effect acknowledged these facts by its remand to the Secretary for a statement of reasons; a procedure which has no statutory authorization.

this Court offered no other reason than its belief that "evidence [of a legislative intent to preclude judicial review] cannot be found in the mere fact that a statute is drafted in permissive rather than mandatory terms." Slip op., pp. 7-8. For this proposition, the Court cited, without discussion, Barlow v. Collins, 397 U.S. 159, 165-166.

We believe that, as applied to this case, Barlow does not support the proposition. To the contrary, if anything, Barlow reinforces our position on the nonreviewability of the denial of a request for the issuance of an interim suspension order.

In Barlow, the plaintiffs sought judicial review of a regulation issued by the Secretary of Agriculture defining the phrase "making a crop" contained in Section 8(g) of the Soil Conservation and Domestic Allotment Act, as amended, 16 U.S.C. 590h(g). The gravamen of the complaint was that, as a matter of law, the regulation was invalid because it incorrectly construed that statutory phrase. In the course of concluding that there was judicial review of the Secretary's regulation, the Supreme Court pointed out that such review was not barred by the fact that the regulation had been promulgated under a statutory provision authorizing the Secretary to "prescribe such regulations, as he may deem proper to carry out the provisions of this chapter." For this authority, the Court concluded, did not

constitute a commitment of the task of defining "making a crop" entirely to the discretionary judgment of the Executive Branch without the intervention of the courts. On the contrary, since the only or principal dispute relates to the meaning of the statutory term, the controversy must ultimately be resolved, not on the basis of matters within

the special competence of the Secretary, but by judicial application of canons of statutory construction. See Texas Gas Transmission Corp. v. Shell Oil Co., 363 U.S. 263, 268-270. "The role of the courts should, in particular, be viewed hospitably where . . . the question sought to be reviewed does not significantly engage the agency's expertise. '[W]here the only or principal dispute relates to the meaning of the statutory term' . . . [the controversy] presents issues on which courts, and not [administrators], are relatively more expert." Hardin v. Kentucky Utilities Co., 390 U.S. 1, 14 (HARLAN, J., dissenting). Therefore the permissive term "as he may deem proper," by itself, is not to be read as a congressional command which precludes a judicial determination of the correct application of the governing canons.

What the Supreme Court thus decided was that the Secretary's permissive authority to promulgate regulations did not bar judicial review of an actually issued regulation to decide whether, as alleged, it was inconsistent with a governing statutory provision. But the Government had not suggested otherwise (its position in Barlow was simply that, for reasons that are of no present relevance, the plaintiffs lacked standing to maintain the action). For obviously, the authority to issue such regulations as "he may deem proper" confers no license upon the Secretary to issue a regulation which incorrectly construes a statutory term. And, as the Supreme Court stressed, the Barlow dispute related exclusively to "the meaning of [a] statutory term" and questions of statutory construction have long been recognized as appropriate for judicial resolution.

Accordingly, Barlow possibly would have some relevance here if the charge were that, in the exercise of his discretion, the Secretary had issued a suspension order which offended some statutory term contained in the FIFRA. In such circumstances, as in Barlow, the Court would not be asked to direct the Secretary to take some action which the statute makes permissive and not mandatory. Rather, as in Barlow, the Court would be

called upon to determine whether, in choosing to act affirmatively (although under no statutory mandate to do so), the Secretary had stayed within the bounds of the governing legislation.

But the Court is not being called upon here to review judicially administrative action said to be inconsistent with the statutory terms and, therefore, not within the scope of the legislative permission. Instead, what is involved is whether, when Congress provides that in certain circumstances the Secretary may take a specified action (e.g., the issuance of a suspension order), a court may review his election not to take that action and, if it disagrees with the Secretary's choice, compel him to do what the legislature has specifically declined to make mandatory.

Nothing in the Barlow decision gives any foundation to this Court's affirmative answer to that question in its May 28, 1970, opinion. Indeed, what the Supreme Court said in Barlow points the other way. As we have seen, the Court laid heavy emphasis on the fact that the Barlow controversy had to be resolved "by judicial application of canons of statutory construction" and not on the basis of "matters within the special competence of the Secretary." In sharp distinction, resolution of the controversy here turns upon matters within the special competence of the Secretary and not upon the application of any canon of statutory construction.

The decision as to whether to suspend a particular registration of an economic poison necessitates the resolution of many intricate,

scientific questions and, in many instances, will entail the delicate balancing of competing considerations. As graphically illustrated by the statement of reasons filed by the Secretary with this Court, the question as to whether a specific use of the economic poison may be hazardous (and, if so, to what extent) is only one of the matters to which the Secretary addresses himself. He also properly considers, inter alia, whether there are essential benefits to human health and welfare flowing from that use and, if so, whether there are equally effective and safe substitutes which can be employed for that use. The judgment as to whether immediate suspension of a registration would be in the overall public interest manifestly involves a weighing of all of these factors.

In performing his function, the Secretary has available the advice of individuals who are fully qualified to evaluate the various factors. We have furnished the Court with biographical data on each of the scientists who participated in the decisions of the Secretary which the petitioners have asked this Court to set aside. As we have previously mentioned and the Court will observe, on a collective basis these individuals possess extensive educational and vocational credentials in such relevant fields as pharmacology and toxicology, entomology, chemistry (including biochemistry), zoology, animal husbandry and wildlife research.

With due deference, we submit that the courts are not similarly equipped to pass judgment on these scientific and technical matters. In the context of this case, and to cite but one example, it is just not a judicial function to balance, on the one hand, the role which DDT

plays in the reduction of insect-borne human diseases and in the preservation of adequate food supplies against, on the other, the possible deleterious effects of the chemical. Not only do courts lack the expertise to measure the quantum of the benefits and detriments of DDT but they are in no position to evaluate the availability of adequate substitutes for essential uses. And it is equally an administrative - and not judicial - question as to whether, assuming the established existence of certain hazards from DDT use, the overall public interest requires an assumption of those risks. It doubtless is for that reason that Congress indicated (by the deliberate choice of the word "may") that the Secretary could - but was not required to - suspend a registration if he found the economic poison in question presented an imminent hazard. Stated otherwise, the casting of the suspension power in permissive terms reflected a congressional awareness that the Secretary might conclude that the hazards (if any) inherent in a particular registered use of the commodity are outweighed by the benefits to the public flowing from the same use.

We have not overlooked the fact that, in Nor-Am Agricultural Products, Inc. v. Hardin (No. 18,478, decided July 15, 1970), a divided Seventh Circuit panel concluded that there is judicial review in a district court of an order of the Secretary which suspends the registration of an economic poison. We need not explore here, however, our disagreement with that conclusion which, since the Government's petition for rehearing in banc was granted on August 13, 1970, will now be considered by the full Court. For, even if the Seventh Circuit majority were right, it does not follow



that a decision of the Secretary not to issue a suspension order is similarly reviewable - either in a district court or upon a petition for review filed in a court of appeals.

What was held judicially reviewable in Nor-Am was the finding which, under Section 4c, the Secretary must make before he summarily terminates the right of a manufacturer to sell or distribute the economic poison involved, viz., the finding that an imminent hazard to the public is involved. In order to decline to issue a suspension order, however, the Secretary is not required to make the converse finding that no such hazard is presented - or, for that matter, any other type of administrative finding. At the risk of undue repetition, we stress again that Section 4c does not provide that the Secretary shall issue a suspension order if he finds (or should find) the presence of an imminent hazard - the statutory term is "may" and not "shall." Thus, the Secretary's latitude not to suspend a registration is without the qualification that is imposed upon his entitlement to issue a suspension order; more than that, it is without any qualification whatsoever.

In the final analysis, then, the issue here is not whether or to what extent judicial review is available either of allegedly unlawful affirmative administrative action or of administrative non-action in the face of a legislative command that action be taken if certain specified conditions prevail. There is not a single word anywhere in the FIFRA to indicate that there are any circumstances in which the Secretary is under a legislatively imposed mandate to issue a suspension order. This



being so, when the Secretary does not issue such an order there is nothing for the courts to review. At the most, the judicial role in this area is to insure compliance with constitutional and statutory mandates. It is not to assume functions which, in so many words, Congress has given to the administrative agency.

### III.

THE DECISION OF THE SECRETARY NOT TO SUSPEND DDT  
REGISTRATIONS AND NOT TO TAKE PRECIPITOUS ACTION  
REGARDING CANCELLATIONS HAS A RATIONAL FOUNDATION  
AND, THEREFORE, MUST BE UPHOLD

In its May 28, 1970, opinion, the Court remanded this case to the Secretary "either for a fresh determination on the question of suspension, or for a statement of reasons for his silent but effective refusal to suspend the registration of DDT." Slip op., p. 11. Additionally, the Court instructed the Secretary to "decide on the record whether to issue the remaining requested cancellation notices, or explain the reasons for deferring the decision still further." Slip op., p. 12.

Pursuant to the Court's order, Dr. Ned D. Bayley, Director, Science and Education, acting for and on behalf of the Secretary, reviewed and reconsidered all prior administrative determinations with respect to DDT, and on June 29, 1970, issued a statement that was filed with the Court and contains the reasons supportive of his conclusion "that there should be adherence to the prior determination that no DDT registration should be suspended at this time, and that further action with respect to cancellations should await completion of the use-by-use evaluations presently in

progress." Supp. App. 46.

This decision was made after

Dr. Bayley, in consultation with 13 other distinguished scientists, conducted a thorough, dispassionate, scientifically objective analysis of voluminous materials relating to DDT.<sup>11/</sup> The decision not to suspend DDT was predicated primarily on the fact that the in-depth professional scientific review mandated a conclusion that there simply was no statutory basis for suspending DDT because "(1) \* \* \* the scientific evidence now available does not establish that the use of DDT constitutes an imminent hazard to human health; (2) \* \* \* the presently available scientific evidence indicates that there are some adverse effects upon certain species of fish and wildlife as a result of the use of DDT, but that such effects do not constitute an imminent hazard to fish and wildlife or the environment; [and] (3) \* \* \* DDT has indisputably important and beneficial uses in connection with human health and agriculture, and there are not yet available suitable substitutes for all essential uses."<sup>12/</sup> Supp.

App. 58.

With respect to the cancellation of DDT registrations, Dr. Bayley concluded that "the use of DDT should continue to be reduced in an orderly, practicable manner which will not deprive mankind of uses which are essential to the public health and welfare" and affirmed that "the

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<sup>11/</sup> DDT is the most scientifically predictable pesticide known to man because it has been subjected to more scientific scrutiny and investigation than any other pesticide (see, e.g., the data the Secretary filed with the Court).

<sup>12/</sup> A finding that suspension is necessary to prevent an imminent hazard to the public is a mandatory condition precedent to the issuance of a suspension order. 7 U.S.C. 135b(c).

Department is presently conducting a thorough, active evaluation with respect to each use of every registered product that contains DDT." Supp. App. 59.

The foregoing administrative conclusions are bottomed on the solid underpinning of an objective evaluation of reliable scientific evidence; therefore, such determinations are not arbitrary or irrational. Five prestigious committees from the scientific community scrutinized the subject of DDT in minute detail and recommended the orderly discontinuation of DDT uses which are not imperative to the public; not one of the committees even intimated that the use of DDT constitutes, or is on the verge of presenting, an imminent hazard to the public. Inasmuch as the leading authorities in the area of concern have overwhelmingly ascertained that the public is not imperiled by the use of DDT, obsequious granting of the preeminent relief solicited by the petitioners - viz., "immediate action to ban the use of DDT" - would contravene the provisions of the FIFRA since the statute empowers the Secretary to suspend only when he finds that such action is necessary to prevent an imminent hazard to the public. 7 U.S.C. 135b(c). Of equal significance is the fact that a summary ban of all DDT issued to placate an unfounded but emotional cry de pais would constitute a grievous disservice to man and a wanton disregard of the public health and welfare.

In a word, there is no legal basis for suspending DDT registrations, and the orderly reduction of DDT uses advocated and adopted by the Secretary is warranted in fact and in law.

A. The Agency Decision Must Be Sustained  
Unless It Is Arbitrary or Capricious

As this Court's May 28, 1970, opinion stated, "the suspension decision is committed by statute to the Secretary; the role of the court is merely to ensure that he exercises his discretion within a reasonable time, and to ensure that his decision is supported by the record."<sup>13/</sup> Slip op., p. 11. Plainly, this case does not involve a final order based on a trial-type adjudicatory hearing but, rather, involves a discretionary function which is akin to rule making. Whenever rule making is involved, the scope of judicial review is, of course, governed by the statutory provisions of the Administrative Procedure Act. When, as here, there has not been an agency hearing, Section 10(e)(B)(1) of the Administrative Procedure Act, 5 U.S.C. 706(2)(A), explicitly requires a reviewing court to sustain agency action, findings, and conclusions unless they are found to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law."

The "substantial evidence" test enunciated in Section 10(e)(B)(5) of the Administrative Procedure Act, 5 U.S.C. 706(2)(E), is applicable only in "a case subject to" Sections 7 and 8 of the Administrative Procedure Act - viz., 5 U.S.C. 556 and 557 - and to a case involving agency action "reviewed on the record of an agency hearing provided by statute." Clearly, Sections 7 and 8 of the Administrative Procedure Act are primarily concerned with agency decisions predicated on adjudicative hearings and

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<sup>13/</sup> "5 U.S.C. § 706 (Supp. V, 1969)."

are only applicable to quasi-legislative rule making decisions when the "rules are required by statute to be made on the record after opportunity for an agency hearing \* \* \*." 5 U.S.C. 553.

The FIFRA does not require a hearing as a condition precedent to the exercise of the Secretary's discretionary power with respect to the registration of an economic poison, and the case does not involve action based on any adjudicatory proceeding.<sup>14/</sup> Thus, this litigation is governed by the settled rule that the proper scope of judicial review of administrative rule making is merely a determination of whether the rules promulgated have any rational foundation. Rochester Tel. Corp. v. U.S., 307 U.S. 125, 145-146; Securities Comm'n. v. Chenery Corp., 332 U.S. 194, 207; General Motors Corporation v. United States, 324 F. 2d 604 (C.A. 6). As stated in Mississippi Valley Barge Co. v. U.S., 292 U.S. 282, 286-287, "the judicial function is exhausted when there is found to be a rational basis for the conclusions approved by the administrative body." See also, Texas Eastern Transmission Corp. v. Federal Power Com'n, 414 F. 2d 344, 349-350 (C.A. 5). In Security Adm'r v. Quaker Oats Co., 318 U.S. 218, 233, an action challenging the promulgation of a standard of identity under the Federal Food, Drug, and Cosmetic Act, the Supreme Court squarely held that the question was whether the Administrator had made a rational choice among possible alternatives. American Trucking Ass'ns v. U.S., 344 U.S. 298, is also in point. In American Trucking, several motor carriers

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<sup>14/</sup> Even a cursory analysis of the relevant law totally vitiates the implication in the petitioners' supplemental brief, p. 12, note 10, that the "substantial evidence" test is applicable here.

attacked the validity of new regulations adopted by the Interstate Commerce Commission to govern the use by licensed motor carriers of trucking equipment exempt from ICC regulation. After pointing out that Sections 7 and 8 of the Administrative Procedure Act did not apply because (in common with the FIFRA) the Motor Carrier Act does not require discretionary rule making power to be exercised on the basis of a record made by an agency hearing, the Court stated (344 U.S. at 320):

Hence, whatever our view of the substantiality of the evidence, we do not think that the rules must fall because the Commission failed to assume and satisfy a "burden of proof."

In upholding the challenged regulations, the Court thought it enough that (344 U.S. at 314):

The relationship of these rules to the regulatory scheme they are designed to protect forms a basis for the answer to the various allegations that certain rules are arbitrary. For our purposes, such an argument must mean that the Commission had no reasonable ground for the exercise of judgment. In the instant case, such is not the situation; the evidence marshalled before the Commission plainly supports the conclusion that the continued effectiveness of its regulations requires the rules prescribed.

As this Court said recently in Udall v. Washington, Virginia and Maryland Coach Co., 130 U.S. App. D.C. 171, 398 F. 2d 765, 769, "there is a judicial presumption of validity of administrative action" and "where administrative control has been congressionally authorized, the judicial function is exhausted once there is found some 'rational basis' for the action taken." See also, International Union, United A., A. & A. Imp. Wkrs. v. N.L.R.B., 129 U.S. App. D.C. 126, 392 F. 2d 801; Eustace v. Day, 114 U.S. App. D.C. 242, 314 F. 2d 247. "Where there is more than one



solution to an administrative problem the court will uphold any one that has a rational basis." Udall v. Washington, Virginia and Maryland Coach Company, supra. "Even though, upon consideration of all the evidence, a court might reach a different conclusion, it is not authorized to substitute its own [judgment] for the administrative judgment." Swayne & Hoyt, Ltd. v. U.S., 300 U.S. 297, 304. See also, Calcutta E. Coast of India & E. Pakistan/U.S.A. Conf. v. F.M.C., 130 U.S. App. D.C. 261, 399 F. 2d 994.

Directly in point is Nor-Am Agricultural Products, Inc. v. Hardin, supra, where the Seventh Circuit applied the "arbitrary or capricious" test to ascertain the validity of a decision with respect to a suspension order under the FIFRA. In the Nor-Am case, over a dissent the court held that the Secretary acted arbitrarily when he suspended the registration of "Panogen," a mercury compound used to treat seed for protection against fungi, on the basis of a tragic mercury poisoning in Alamogordo, New Mexico, and the fact that there have been numerous reports of mercury treated seed getting into food and feed. While the Government does not agree with this holding and has successfully petitioned for rehearing in banc, we do agree that, jurisdictional and other questions aside, the panel majority applied the proper legal test to ascertain whether a decision with respect to suspension, or for that matter to cancellation, under the FIFRA is valid. Our disagreement in this regard stems from our belief that the majority misapprehended the facts when applying the "arbitrary or capricious" test.



We do not mean to infer, of course, that a "substantial evidence" scope of review in the case sub judice would warrant a different result. As we show, infra, pp. 33-70, the administrative decisions involved here were plainly supported by substantial evidence. However, there is no reason why this Court should adopt a standard for review which clearly has no application with respect to a decision by the Secretary not to suspend or cancel a registration under the FIFRA.<sup>15/</sup>

B. The Scientific Data on Which the Secretary's Decision Is Based Provides a Rational Foundation for That Decision

It follows from the foregoing that, even if judicially reviewable, the Secretary's decision respecting DDT registrations must be upheld if it has a rational foundation in the scientific data upon which it is based. As we show below, such a rational foundation is plainly present.

Before discussing the scientific data and conclusions upon which the Secretary relied, one preliminary observation is required. In their supplemental brief, petitioners have almost entirely ignored that data and those conclusions. Far from attempting to demonstrate that it does not permit

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<sup>15/</sup> Petitioners' contention in their supplemental brief, p. 19, that the burden of proof in this case "is on the manufacturers to show that their product is safe or on Respondents to explain why it is safe" is baseless since (1) there has not been an adjudicatory proceeding in connection with the case, (2) many DDT manufacturers are not even parties to the litigation, (3) the case is being considered in the first instance in an appellate court which reviews but does not receive evidence, and (4) the case involves rule making, therefore, the propriety of the administrative action must be measured by the "arbitrary or capricious" test.

the conclusion which the Secretary reached, petitioners would have the Court decide the merits of the controversy as if virtually none of the scientific evidence underlying the administrative action even existed. To cite but one example, petitioners persist in the claim that DDT is carcinogenic without anything more than a passing acknowledgment of the contrary conclusion of, inter alia, Dr. Wayland J. Hayes, a physician and biochemist who is one of the world's foremost authorities on the toxicology of pesticides. See pp. 33-46, infra. While petitioners apparently do not agree with Dr. Hayes - or with the American Medical Association's view in May 1970 that DDT has not been established to be carcinogenic to man (see p. 40, infra) - the question here is not whether petitioners would have accepted the conclusions of these noted authorities. The decision-making role has been given by Congress to the Secretary - not to petitioners - and the Secretary is free to rely (on the issue of carcinogenicity as well as any other factual matter) upon any credible body of scientific opinion available to him. That, out of the vast collection of material respecting DDT, petitioners may be able to cull out isolated expressions of a different opinion is totally irrelevant.

In short, we submit that petitioners' brief - failing as it does to give any real consideration to the scientific documentation which led the Secretary to his conclusions - is of no assistance whatever in the evaluation of those conclusions. We now turn to that documentation.

1. DDT Is Not Endangering the Public Health. To the Contrary, DDT Is an Indispensable Weapon in the Arsenal of Substances Used to Protect Human Health and Has an Amazing and Exemplary Record of Safe Use
  - a. The Toxicological Effect of DDT, As With Many Compounds Essential to Health, Must be Considered For a Particular Species in Light of Its Dosage-Response Relationships. DDT, When Properly Used at Recommended Concentrations, Does Not Cause a Toxic Response in Man or Other Mammals and Is Not Harmful

Human beings contain many substances, some of which are essential to life that are poisonous at high concentrations.<sup>16/</sup> A rudimentary imperative with respect to any toxicology study is, therefore, the establishment of a concept of quantity, i.e., evaluation of the safety of a chemical in terms of its dosage-response relationship in a particular species. Credible scientific evidence conclusively establishes that the ordinary intake of DDT by humans in the United States is well within tolerances to which man can safely be exposed. Stated otherwise, DDT assimilated in ordinary quantities is neither poisonous nor deleterious to man.

Wayland J. Hayes, Jr., M.D., Ph.D.,<sup>17/</sup> reported that a portion of the DDT intake is stored in human body fat even when absorbed in small amounts.

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<sup>16/</sup> Humans contain traces of copper, selenium and zinc, all of which are essential to life but which would produce a toxic response if present in large amounts. VII-9a, p. 14.

<sup>17/</sup> Dr. Hayes is a Professor of Biochemistry, Division of Toxicology, Department of Biochemistry, Vanderbilt University School of Medicine, and was formerly Chief Toxicologist, Pesticides Program. U. S. Public Health Service. Dr. Hayes has published 83 papers on the toxicology of pesticides, 9 papers on zoology and 5 papers on tropical medicine. Curriculum vitae regarding Dr. Hayes and each of the scientists upon whom the Secretary places principal reliance are set forth in the Biographical Appendix to this brief.

II-5, p. 389; Supp. App. 320. Dr. Hayes reported studies by other public health service scientists in which traces of DDT were analyzed in 18 restaurant meals and in which the average daily intake of DDT based on all meals was 0.184 mg. The greatest amount of DDT which could have been eaten in the three daily meals was 0.388 mg. In view of these facts, Dr. Hayes and his colleagues fed 10 of 14 volunteers DDT at dosages of 0, 3.5, and 35 mg/man/day. These doses, plus DDT measured in the men's food, resulted in dosage levels of 0.0021-0.0034, 0.038-0.063, and 0.36-0.61 mg/kg/day, respectively, the exact value depending on the weight of each individual. Because all the men were on an ordinary diet, these dosage levels were chosen as being about 1, 20, and 200 times the ordinary dietary level at that time. Along with four controls, the ten men ate DDT daily for at least a year. No clinical effect associated with dosage was detected either by the men themselves, or by careful physical examination and laboratory testing.

Careful study of volunteers who ingested one or a few large doses of DDT have established that 10 mg/kg is the threshold dosage that leads to significant discomfort in some people but to no detectable effect in others. VII-9a, p. 75. Further, doses of 250 or 500 mg of DDT in the form of a suspension or a solution in oil produced no effect except a variable, slight disturbance of the sensitivity of the mouth. Doses of 750 or 1000 mg in oil solution led to disturbance of the sensitivity of the lower part of the face, uncertainty of gait, malaise, hypersensitivity to contact, cool moist skin, but no change in reflexes. The discomfort was temporary. VII-9a, p. 75. Administration of a dose of 1500 mg in

oil solution produced prickling of the tongue and around the mouth and nose beginning about 2.5 hours after the dose. Disturbance of equilibrium, dizziness, confusion, and tremor of the extremities gradually increased. A peak reaction characterized by malaise, headache, fatigue and delayed vomiting was reached about 10 hours after ingestion. Recovery was almost complete in 24 hours. VII-9a, pp. 75-76.

Drs. Duggan and Lipscomb reported the results of monitoring studies (1965 through 1968) in which market baskets of 82 food items representing a two-week diet for a 16- to 19-year-old male were obtained from retail stores. This age group is known to consume greater quantities and kinds of food than any other age group. A total of 30 market baskets per year were purchased bi-monthly in different cities within five geographic regions of the United States. The diet constructed for use in this investigation represented a food intake almost twice that of the average individual. The average daily intake of DDT and its metabolites, DDE and TDE, ranged from 0.056 to 0.087 mg. The total intake of DDT and its metabolites ranged from 0.0007 to 0.001 mg/kg/day, or approximately 1/10th of the amount established as an acceptable daily intake by the Food and Agricultural Organization of the United Nations World Health Organization. II-13a, pp. 153, 159-160; Supp. App. 368-370. Plainly, the customary intake of DDT by humans in the United States is not hazardous.

Dr. Hayes and his colleagues also reported that storage of DDT in the fat of the volunteers fed DDT was proportional to dosage. II-5, p. 389; Supp. App. 320. It ranged from 3 to 13 ppm (mean 7.4 ppm) for



all the men at the beginning of the experiment. Following ten or more months of dosage at 20 times the ordinary dietary level, one man stored recrystallized DDT at a concentration of 90 ppm while two others stored technical DDT at concentrations of 26 and 33 ppm. Following the same length of dosage at 200 times the ordinary dietary level, the men stored recrystallized DDT at concentrations of 216 to 466 ppm (mean 340 ppm) and technical DDT at 101 to 367 ppm (mean 234 ppm). As indicated previously, there were no ill effects detected either by the men themselves or by careful physical examination and laboratory testing.<sup>18/</sup>

Further, Dr. Hayes' studies of recent occupational exposure proved that exposed agricultural workers had an average DDT storage of 17.1 ppm without discernible adverse effects to health, and that heavy occupational exposure produced high storage levels without clinical adversity. The highest accumulation reported for man was 648 ppm found in a worker in a formulating plant. Dr. Hayes also cited investigations by Dr. Ortelee in which 40 formulating plant workers were examined and studied. The results indicated that 26 of these men had absorbed DDT at a rate equal to or higher than that associated with an oral dose of dissolved DDT at the rate of 35 mg/man/day. The men had been exposed at this rate for 0.5

<sup>18/</sup> Petitioners' assertion in their supplemental brief, pp. 33-34, that DDT has a mutagenic effect on rats has no relevance to humans. The report by Dr. Legator, cited by petitioners, merely verifies the need to evaluate a chemical in light of its dosage-response relation to a particular species. Dr. Legator's study showed that 80 mg/kg of DDT administered to male rats intraperitoneally caused 13% foetal mortality; 60 mg/kg caused a 9% loss; 20 mg/kg was equal to that of the controls or 4.5%. DDT administered to the male rats orally at doses of 80 and 60 mg/kg caused a 9% increase in foetal mortality over that of the controls. Any thought that foetal losses in rats induced by massive doses of DDT has any relation to humans is dispelled by the fact that 35 DDT factory workers who for 9 to 19 years were exposed to DDT levels averaging 400 times that of the general population fathered 101 children during that period. VII-9a, p. 20.

to 6.5 years (mean 3.5 years) but showed no ill effects as judged by medical examinations, their own reports, or their work attendance records.<sup>19/</sup>

In other studies, Dr. Laws and others reported investigations involving a total of 35 men with high, medium, and low occupational exposure to DDT at a formulating plant during employment ranging from 9 to 19 years. The plant had produced DDT continuously and exclusively since 1947 and at the time of study in 1967 was producing an average of 6 million pounds per month. It was estimated that the average daily intake of DDT by 20 men in the high exposure group was 17.5 to 18 mg/man/day as compared to an average of 0.04 mg/man/day for the general population at that time. The overall range of storage of the sum of isomers and metabolites of DDT in the men's fat was 38 to 647 ppm as compared to an average of 8 ppm for the general population.<sup>20/</sup> The findings from medical history, physical examination,

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<sup>19/</sup> Petitioners' extravagant claim that DDT is a "genetic danger to man" is unfounded (Pet. Supp. Brief, p. 11). Dr. Hayes has stated: "There is not a shred of evidence that even the doses of DDT received by men employed in formulating plants have any effect on their sexual functions. The possibility of an effect on people in the general population who absorb much less DDT is even more absurd." VII-9a, pp. 72-73.

<sup>20/</sup> Drs. Morgan and Rohn reported that human adipose tissues in 70 autopsy cases in Tucson, Arizona, during 1967 and 1968 contained 1.54 ppm of DDT and 4.48 ppm of DDE (II-15, pp. 452-453; Supp. App. 378); Dr. Quinby, et al., conducted human adipose studies during 1961 and 1962 from 130 subjects from different geographic areas in the United States and found that the general population had a mean storage level of 4.0 ppm of DDT and 7.8 ppm of DDE (II-16, p. 175; Supp. App. 382); and Dr. Hoffman and others reported that in 1962 and 1963 an average concentration of DDT plus DDE of 10.3 ppm (II-17, pp. 393-394; Supp. App. 383-384). These investigations evidence the fact that there has been no increase or progression of storage of DDT and its metabolites in the general population of the United States since 1951, but instead reflects a steady decrease in the storage level. Undoubtedly, the decrease results from the fact that the use of DDT in the United States has been reduced approximately 50% in the past decade.



routine clinical laboratory tests and chest X-ray film did not reveal any ill effects attributable to exposure to DDT. II-17a, pp. 766, 774-775; Supp. App. 385-387. Of great significance is the fact that none of the workers developed symptoms of cancer. Ibid.

In short, medical research, clinical investigation and epidemiological experience establish that DDT when properly used is not poisonous or otherwise hazardous to humans.

DDT is metabolized in the body of man and animals and is converted to DDA, DDE, and DDD (TDE). Excretion is principally as DDA but small amounts of DDE and TDE are also excreted (II-22, p. 146; II-24, pp. 77-78; II-24b, p. 862; II-24d, pp. 37-40; Supp. App. 393, 400-406), and, as previously mentioned, some DDT and its metabolites are stored in human body fat. In summarizing the studies by himself and others, Dr. Hayes reported that if the intake of DDT in the diet remains constant the amount of the compound stored in the fat gradually increases for a time but will eventually reach a peak or plateau. II-22, p. 64; Supp. App. 389. He explained the principle underlying the relationship between absorption, storage, and excretion as follows:

The \* \* \* relationship \* \* \* may be illustrated by comparison to banking in which deposit is analogous to a fully absorbed dose, and withdrawal is analogous to excretion. If one deposits exactly \$1.00 on each banking day and also on each of these days withdraws half of the balance (leaving any fraction of a cent in the bank in order to increase the balance or storage), then the amount remaining in the bank each morning before processes of deposit and withdrawal are carried out would increase rapidly at first and then more slowly until a steady state is reached. The actual values for the second and succeeding days are

\$0.50, \$0.75, \$0.88, \$0.94, \$0.97, \$0.99, and \$1.00. From then on, according to our very simple model, the deposit each day will be \$1.00, the withdrawal will be exactly equal to it, and \$1.00 will remain in the bank each morning to represent net storage.

There is extensive evidence that the amount of DDT and related material in the general diet has decreased as the use of DDT in the United States has decreased, especially its use on forage (VII-9a, pp. 91-92); and, as we have previously noted, human adipose tissue studies confirm that there has been a decrease in DDT storage by the general population in the United States since 1961.

The safety record for DDT is phenomenal. Billions of pounds of DDT have been used in anti-malaria programs during the past quarter of a century, and there is no record of human illness attributable to DDT resulting directly from the normal spraying operations among either the 130,000 spraymen or the 535 million occupants of DDT treated houses (II-4, p. 5; Supp. App. 317). Human volunteers and employees working in DDT formulating plants have been exposed to inordinately large quantities of DDT without incurring any illness attributable to DDT. Manifestly, the Secretary's conclusion that "the scientific evidence now available does not establish that the use of DDT constitutes an imminent hazard to human health" was rational since medical and scientific research and investigation fail to indicate any adverse clinical effect upon human health.

b. The Carcinogenic Claims Regarding DDT  
Are Unproved Speculation

In May 1970, the American Medical Association concluded that the theory that DDT is carcinogenic to man is unproved speculation.<sup>21/</sup> VII-5, p. 1056; Supp. App. 631. DDT, like many other substances, has been subjected to close scrutiny as a possible carcinogen, and the introduction of maximal tolerated doses of DDT has produced changes in the livers of rodents involving primarily an increase in hepatomas. But the changes are reversible - a characteristic which is derogative to the thesis that the hepatomas were carcinogenic since metastasis, a normal concomitant of cancer, was not reported - and the morphological changes are peculiar to rodents. II-10b, p. 24; Supp. App. 339.

In October 1969, Dr. Hayes issued the following analysis of the existing reports that have been interpreted as indicating that DDT is a carcinogen when massive doses are introduced in test animals:

An early attempt to produce cancer in highly susceptible type C mice by painting their skins for 52 weeks with a 5% solution of DDT in kerosene produced neither benign nor malignant tumors, although the kerosene did produce chronic inflammatory changes (Bennison and Mostofi, 1950).

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<sup>21/</sup> The AMA further stated that the following are speculations as yet unproved:

1. That DDT significantly reduces photosynthesis in phytoplanktons.
  2. That the concentration of DDT will continue to increase in living organisms for many years.
  3. That DDT as used at present influences human reproduction.
  4. That DDT as used at the present time will control the population explosion by destroying all chlorophyll formers and hence all food supply or by its effects on sex hormones.
- VII-5, p. 1056; Supp. App. 631.

Fitzhugh and Nelson (1947) of the Food and Drug Administration described what they considered a minimal hepatocarcinogenic tendency in rats fed DDT for 2 years. The tumors were from 5 to 12 mm in diameter and paler than the surrounding tissue. Microscopically, they showed an almost complete loss of lobular architecture but were not sharply circumscribed from the rest of the liver tissue. Mitoses were not seen. Some of the cells showed internal changes considered characteristic of the effects of DDT. The authors felt that the tumors could be regarded as adenomas or as low grade hepatic cell carcinomas. It is difficult to see how this conclusion was reached, because it was shown in the same paper that the effects of DDT on the liver are reversible. In any event, when the Director of the Division of Pharmacology, Bureau of Scientific Research, Food and Drug Administration, summarized this and a great deal of later research performed under his supervision, he concluded simply: "DDT is not a carcinogen." (Lehman, 1965.)

By the time Lehman published this conclusion, it was generally recognized that (a) the changes produced by DDT in the livers of rodents involved primarily the endoplasmic reticulum responsible for formation of the microsomal enzymes of the liver, (b) the changes are reversible and (c) the morphological changes are peculiar to rodents. It was also recognized that the changes are not really characteristic, but essentially identical with those produced by the drug phenobarbital, the botanical insecticide pyrethrum, and a number of other materials.

Recently, three papers have been interpreted as indicating that DDT is a carcinogen.

Innes et al. (1969) reported that the tumorigenicity of selected pesticides and industrial compounds was tested by continuous oral administration to both sexes of two hybrid strains of mice, starting at the age of 7 days. The chemicals were given by stomach tube until weaning and thereafter as a mixture in the diet. Maximal tolerated doses were given for the entire period of observation, about 18 months. The authors stressed that the dose received by the mice was far in excess of that likely to be consumed by humans. One of the compounds that gave a statistically significant positive result was DDT. The incidence of tumors was comparable to the mean tumor incidence produced by a group of positive control compounds, most of which are weak or even questionable carcinogens of no demonstrated importance to human health.

The authors made no distinction between hepatomas and carcinomas. It is difficult to understand why, in denying the practicality of making this important distinction, they entirely neglected the matter of reversibility. A full account of the study is promised later. In the meantime there is no assurance that the small number of tumors observed in mice exposed to DDT were different from the "nodules" described by Fitzhugh and Nelson in 1947. Furthermore, the entire testing scheme was adopted in the hope of achieving greater sensitivity, but no responsibility has been taken for measuring its biological significance. There is no assurance that the same test would not give positive results for some common items of the diet such as spices, caffeine, or even table salt.

Since their first report in 1966, Tarjan and Kemeny have published many accounts of their multigenerational studies on DDT in mice. The early reports were in Hungarian and Russian. Their most easily available report of the old work was published this year (Tarjan and Kemeny, 1969). Briefly, five generations of inbred BALB/c mice were maintained on a diet containing DDT at such a concentration that they received about twice the dosage received by the workers studied by Laws *et al.* (1967). No effect was demonstrated in either reproductive performance or spontaneous or caffeine-induced motility. The degree and incidence of leucocytosis was greater in the DDT group than in the control group, especially in the latter generations. The greater incidence of leukemia and malignant tumors in the DDT than in the control group attained significance in the  $F_3$  and  $F_4$  generations, respectively, and subsequently increased in each succeeding generation. Interpretation of the results is very difficult. Leucocytosis not only increased progressively in succeeding generations in the DDT mice but also in the controls. The controls showed leukemia, which was especially odd because the authors claimed that leukemia is unknown in the strain of mice they used. An investigation by the World Health Organization showed that all of the findings may have been explained by spoiled food contaminated by aflatoxins. This would explain the unexpected findings in the controls as well as the variability of results in the course of time. In any event no conclusion is justified on the basis of their paper. The World Health Organization has arranged for a repetition of the test in separate laboratories. Any decision will have to await the new results.

Radomski *et al.* (1968) reported that the concentration of DDT and/or DDE was increased in the body fat of people who died of primary malignancy of the liver, metastatic malignancy of the



liver, leukemia, carcinoma of various other organs, toxic hepatitis, portal cirrhosis, amyloidosis, arteriosclerosis, encephalomalacia, and hypertension. The comparison was made with generally younger people killed by automobiles, gunshot, and other accidents. Although minor increases of one or both of the compounds were found in the liver or in the brain in some of the conditions listed above, the authors pointed out that their major conclusions were based on the concentration of pesticides in adipose tissue, not on the concentrations in liver or brain. In one sense no conclusion was reached but it was suggested that the increased pesticide concentration might have been the cause of disease or that disease might have been the cause of increased concentration. If, in fact, DDT were the cause of various fatal diseases other than poisoning, then many of the workers studied by Laws *et al.* (1967) would have died long ago, for they have been exposed as long as other Americans and for 19 years at levels leading to storage very much higher than any observed by Radomski *et al.* Actually, what Radomski *et al.* observed is readily explained by the debilitating nature of the diseases they studied and by the fact that loss of body fat leads to an increase in the concentration of DDT and DDE in the fat that remains. The authors stated that no correlation was found between the elevated pesticide levels and the length of stay in hospital or with inanition. Unfortunately, length of hospital stay has no bearing on the matter because many people suffering from debilitating diseases receive only terminal hospital care. No correlation would be expected. Furthermore, any meaningful correlation with weight loss would have to be based on medical records of the degree and rate of loss. The way in which the authors gathered their information on weight loss guaranteed it would be meaningless.

Unless more convincing evidence is obtained that that reviewed above, I conclude that Dr. Lehman was correct. DDT is not a carcinogen (emphasis supplied). VII-9a, pp. 68-70.

Dr. Agathe, *et al.*, reported that in long-term feeding studies, hamsters maintained on diets containing 500 and 1000 ppm of DDT in the diet failed to show any significant increase in tumor incidence. II-12b, pp. 113-116; Supp. App. 350-353.

Dr. Laws reported that DDT had an inhibitory effect on tumors transplanted experimentally in mice in the laboratory. He reported longevity statistics for 60 animals in each test group during the first 150 days of the study. The mean longevity for the control group was 46 days and all 60 animals developed tumors and all 60 died as a result of the tumors. The mean longevity for the animals on diet containing DDT was 83 days with 22 of the 60 animals never developing a tumor and the remainder developing a slow growing tumor which eventually killed the animals. II-14b, pp. 1-5; Supp. App. 371-376.

Increases in the liver size of test animals induced by DDT are accompanied by increased activity of the hepatic microsomal enzymes, and this response increases the tolerance of an animal to DDT. This adaptive liver response in animals occurs with the administration of any one of more than 200 compounds including some chemicals naturally present in the environment, many drugs such as barbiturates, and various synthetic compounds. II-10c, p. 392, VII-3, p. 9; Supp. App. 341, 611.

With respect to Innes' study, Dr. Jukes estimated that the DDT dosage level corresponded to about 3,000 times the average U. S. human exposure on a food intake basis or about 40,000 times on a body weight basis. The effect of DDT was to produce an eight-fold increase over the controls in the incidence of liver nodules. Dr. Jukes estimates that on a linear dose-response basis, and if the nodules were cancerous (which he does not believe they were), this would correspond to about one additional case of liver cancer in a population of 200 million human beings having



4,000 cases annually, if the calculation is based on body weight, or eight cases on a food intake basis. IV-7, p. 148; Supp. App. 541.

Moreover, epidemiological experience refutes the thesis that DDT is a carcinogen, since liver cancer in humans has been decreasing for many years. VII-9a, p. 33.

In this connection we need only add that the HEW Secretary's Commission on Pesticides and Their Relationship to Environmental Health (Mrak Report) concluded that Innes' report "does not prove carcinogenicity for human beings at the very much lower levels to which they are actually exposed" and that "DDT can be regarded neither as a proven danger as a carcinogen for man nor as an assuredly safe pesticide; suspicion has been aroused and it should be confirmed or dispelled." VII-4, pp. 471-472, 488; Supp. App. 628-630. Most significantly, the Mrak Report did not recommend a summary ban of DDT but rather recommended that within two years of November 1969 all uses of DDT and DDD in the United States be eliminated, "excepting those essential to the preservation of human health or welfare and approved unanimously by the Secretaries of the Departments of Health, Education, and Welfare; Agriculture; and Interior." How then could the Secretary of Agriculture's decision respecting DDT possibly be deemed arbitrary or capricious when the decision comports with the Mrak Report recommendation with utmost precision,<sup>22/</sup> and is consonant with the

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<sup>22/</sup> This fact totally vitiates EDF's great reliance throughout their supplemental brief on the Mrak Report (see, e.g., Pet. Supp. Brief, pp. 9, 20, 22, 25, 28, 33.

views and conclusions of the AMA, and some of the most prestigious physicians and scientists who have devoted a lifetime to the study of the toxicological effects of pesticides?

In sum, the wide variety of studies cited fail to indicate any human health hazard associated with the use of DDT in accordance with label directions. To the contrary, the evidence overwhelmingly demonstrates that DDT is one of the safest pesticides ever developed by and for man. Human injury has occurred only in incidents of accidental and deliberate exposure to inordinately heavy dosages of DDT. II-22, p. 198; II-23, p. 433; II-23b, p. 109; Supp. App. 394, 397, 399.

c. The Presence of DDT in Human Milk Does  
Not Constitute a Threat to Nursing Infants

DDT has long been known to occur in human breast milk. II-22, p. 146, II-26, pp. 161-164; Supp. App. 393, 406-409. The first report was that of Laug, et al., 1951. More recently, Dr. Quinby, et al., reported levels of less than 0.01-0.22 ppm (average 0.07) of DDT and less than 0.01-0.14 ppm (average 0.10) of DDE in lactating women sampled from various parts of the United States. II-27, p. 3; Supp. App. 410. Dr. Jukes, in commenting on these studies, expressed the following viewpoint:

The authors (Quinby and others) noted that the DDT content of both human and cows milk was trending downwards and also that women excreted a much larger fraction of their daily DDT intake in their milk than cows did. The tolerance of 0.05 ppm in cows milk reflected the thinking that babies may be more susceptible than adults to DDT, a thought which persisted despite the statement by the American Medical Association to the effect that bottle fed babies are now-a-days put on a diet containing other foods when they are very young and

these foods often include processed baby foods for which finite limits for content of pesticide residues have been set. In my opinion, a conservative attitude for milk is to be commended, but in this case the ratio between the amount permitted in milk as compared with other foods was set at more than 1:100, which was scarcely realistic. A ratio of 1:10 would have been more sensible. The 0.05 ppm figure (the legal tolerance established for DDT in cows milk) said, in effect, that the amount permitted in milk was one 10-thousandth of the toxic dose. As far as I know, no substance present in foods, natural or added, could meet such a requirement; not even water. It was this anomaly that led to the uproar about human milk. The tolerance of 7 ppm in adult foods may be compared with the finding that rats on a diet containing 200 ppm of DDT reproduced normally through 3 generations. \* \* \* Results with human beings indicate that adults can consume 15 to 18 milligrams of DDT daily for periods up to several years without showing detectable ill effects. If we arbitrarily assume that the amount tolerated by infants should be not more than one-tenth of this level, then an 8-lb. baby could safely receive about 0.1 mg. daily. This would be present in one quart of breast milk containing twice the level of DDT that is permitted in cows milk. However, it must be borne in mind that the figure of 15 to 18 mg. of DDT daily for adults does not represent the highest level that is non-injurious. The concept that milk is normally free from so-called toxic substances is an illusion that does not fit the facts of science. Toxicity depends on quantity, not identity. Milk contains nicotine if the mother has been smoking. Nicotine is about 500 times as poisonous as DDT. Milk always contains arsenic and radio-active carbon. Milk contains cholesterol which is carcinogenic to experimental animals under appropriate experimental conditions. II-27a, pp. 9-10; Supp. App. 411-412.

- d. Continued Production of DDT Is an Imperative  
Adjunct to the World-Wide Combat Against Insect-  
Borne Disease Vectors and DDT Supplies Must be  
Available to the United States to Protect  
Against a Resurgence of Eradicated Diseases

The Department of Health, Education, and Welfare reports that malaria, a devastating protozoan disease transmitted by anopheline mosquitoes, is regarded by a vast majority of health authorities as the

most serious communicable disease problem that plagues man. II-4, p. 1; Supp. App. 314. By 1959, malaria eradication had been accomplished in areas with a population of 279 million people preeminently as a consequence of use of DDT. Today, more than 960 million people who a few years ago were subject to malaria endemicity are now free of malaria; another 288 million people live in areas where the disease is being vigorously attacked and transmission is coming to an end. VII-9a, p. 5; Supp. App. 632. Continued production and use of DDT is crucial for malaria control throughout the world. "While caring for all species, we owe some special allegiance to our own, even human beings living in other countries." VII-9a, p. 73.

Malaria has not been a serious problem in the United States since the early 1950's following intensive spray programs of DDT for its eradication; however, a few cases still occur each year, especially in the Southern latitudes in the United States. Since 1966 there has been a sharp increase in malaria cases imported into the United States, mostly through military personnel returning from Southeast Asia. For example, in 1966, 620 of the 764 cases reported to have occurred in the United States involved military personnel. In 1969, there were 3,806 cases reported, 3,679 of which involved military personnel. By comparison the annual incidence of malaria cases from 1959 through 1965 ranged from 50 to 156, only about one-third of which were military-related. NCDC Malaria Surveillance, 1969 Annual Report. In view of the probability that importation of malaria through military personnel will continue at the rate of several thousand cases per year for the next several years, and

since each of these cases will remain infective for mosquito vectors for a period of several more years, a substantial reservoir for malaria already exists and probably will be expanded; therefore, the stage has been set for potentially serious outbreaks in the United States. On the basis of our present technology, the application of DDT would be the most effective means of controlling such outbreaks should they occur in the United States; therefore, we must retain DDT to guard against a severe epidemic.<sup>23/</sup>

There are four important types of encephalitis occurring in the United States today: eastern equine encephalitis; western equine encephalitis; St. Louis encephalitis; and California encephalitis. Outbreaks of these have occurred sporadically in several parts of the United States. DDT is the residual insecticide of choice for application to walls of buildings and homes and for the treatment of the under surfaces of houses supported on blocks or pilings which is a common form of construction in the southern states. DDT treatments have also given

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<sup>23/</sup> The tragic effects of the unavailability of adequate malaria eradication programs has been demonstrated repeatedly. In Ceylon, Central America, Ecuador, and Paraguay, prompt resurgence of malaria followed temporary stoppages of a year or more in malaria eradication programs because of funding difficulties. In Ceylon, to cite but one example, following a country-wide malaria eradication campaign in the 1950's and early 1960's, the number of confirmed malaria cases reached a low of 17 in 1963 when full-scale house spraying was partially withdrawn and subsequently terminated in 1964. The cases increased annually thereafter to 150 in 1964, 308 in 1965, 499 in 1966, and 3,466 in 1967. In 1968 the disease reached epidemic proportions numbering more than a million cases throughout the country. II-4, p. 8; Supp. App. 319. The DDT program was resumed in 1969.



significant protection against other important vector-borne diseases such as bubonic plague, yellow fever, hemorrhagic fever, phlebotomus (sandfly) fever, dengue fever (a recent outbreak occurred in Puerto Rico where it was controlled by use of DDT), cutaneous-leishmaniasis, and Carrion's disease. II-4, p. 3; Supp. App. 316.

In summary, toxicological studies of the effects of DDT on man show that use in accordance with label directions on products registered under the FIFRA provides an amazingly wide margin of safety. The levels of DDT that man and animals are normally exposed to does not cause a toxic response. Storage and excretion investigations prove that the levels of DDT retained in the body of man are not injurious. DDT is the most thoroughly researched, safest pesticide to protect man against the ravages of insect-borne disease vectors, and it is at present an indispensable weapon in the arsenal of substances used to protect human health.<sup>24/</sup> See Appendix C.

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<sup>24/</sup> For the past decade, the World Health Organization has sponsored an international collaborative research effort by seven laboratories - three in the United States, two in Africa, and two in Great Britain - aimed at finding a possible substitute for DDT. As of August 1968, more than 1,300 chemicals had been studied in this international collaborative effort. However, only two compounds, malathion and aprocarb (Baygon) show any real promise for even limited operational use, and both have severe limitations. Neither malathion nor aprocarb is as long-lasting as DDT, both are much more expensive, and aprocarb is much more toxic to both those applying it and to the occupants of treated houses. Both are effective for only two to three months at the same dosage rate at which DDT is used once or twice annually which would increase spraying labor costs two or threefold. Malathion is more than four times more costly and aprocarb more than 14 times more costly than DDT at the time of initial purchase. II-4, pp. 5 and 7; Supp. App. 317-318.

2. Presently Available Scientific Evidence  
Indicates That There Are Some Adverse  
Effects Upon Certain Species of Fish and  
Wildlife as a Result of the Use of DDT,  
But Such Effects Do Not Constitute an  
Imminent Hazard to Fish, Wildlife, or  
the Environment

The Report of the National Academy of Sciences (Committee on Persistent Pesticides) recognizes that the use of persistent organochlorine insecticides has contributed to problems in wildlife, particularly in certain species of fish and birds in some areas. VII-3, pp. 11-13; Supp. App. 612-613. But DDT is not the major factor adversely affecting wildlife. The primary disruption to wildlife is the increase of human population with all its consequences including, inter alia, human invasions of wildlife habitat, industrial pollution, clearing and draining the land, and building extensive networks of roads and freeways. VII-9a, p. 22. Nonetheless, with the exception of a few species that may be destined to extinction because of the laws of Nature, bird and mammal populations throughout the North American continent are being sustained at stable or increasing rates.

DDT has been found in many forms of animal life, such as earthworms, fish, frogs in the Sierra Nevada Mountains in California, and northern fur seals collected in Alaska and off the Washington Coast. III-19, pp. 9-11; 21, p. 233, 22, p. 204; 24, p. 198; Supp. App. 426-431. Some reports suggest that DDT is interfering with the reproduction of certain species of raptorial birds.



Drs. Wurster and Wingate report residues of DDT averaging 6.44 ppm in 5 eggs and 2 chicks of the Bermuda petrel, and suggest that DDT is responsible for a 10-year decline in reproduction by this species.

III-13, p. 979; Supp. App. 423. But the Bermuda petrel was considered virtually extinct for nearly 300 years until a small breeding colony was discovered in 1951, and these authors report that the number of breeding pairs increased from 6 in 1958 to 22 in 1967. Id. at 979-980.

Dr. Reichel and others reported studies in which bald and golden eagles found sick or dead in 18 States and Canada were analyzed for pesticide residues. III-14, p. 28; III-16, p. 142; Supp. App. 424-425. Residues of DDE, DDD, and dieldrin were detected in all samples of bald eagle carcasses; other compounds found less frequently were heptachlor epoxide, endrin, and DCEP, a metabolite of DDT. DDE was detected in all samples of golden eagle carcasses; DDD, DDT, dieldrin, heptachlor epoxide were detected less frequently. Various authors report a direct correlation between concentration of DDE and egg shell thickness in various species of birds and have implicated this as a factor in reproductive failure in several instances (III-12, p. 109; III-55, pp. 73-78; III-72, pp. 9-11; Supp. App. 422, 488-496); however, as we now show, the scientific community presently believes that many of the reports are inaccurate because they characterized polychlorinated biphenyl (PCB) as DDT.

Although quantification was not attempted, Dr. Anderson, et al., detected PCB in the eagle samples in the same order of magnitude as DDE. They reported that PCB compounds also reduce the thickness of egg shells, and their data indicates that the dose-response relationship of PCB is similar to that of DDE. III-12, pp. 103-106, 108; Supp. App. 421.

Since 1967 it has become known that the presence of polychlorinated biphenyl compounds, which are widely distributed in the biosphere, have caused serious errors in analysis of DDT by gas chromatographic techniques. The Mrak Report reflects the thought that many prior reports involving gas chromatographic analysis of DDT and its metabolites in non-target organisms may be absolutely misleading:

Since 1929, polychlorinated biphenyl liquids, resins, or solids have been spread widely in our environment in oils, hydraulic fluids, adhesives, plastics, building materials, fuels, fire retardants, heat transfer agents, electrical equipment, paper and many other industries. The presence of PCB has caused serious analytical errors in the nonspecific gas chromatographic analysis of the chlorinated hydrocarbons. \* \* \* It is clearly necessary to confirm qualitatively the determination of DDT residues and not to be confused by gas chromatographic peaks that overlap DDT but represent totally different materials. \* \* \* Such false peaks have been reported in gas chromatograms from some wildlife samples along with organochlorine pesticides. \* \* \* Cod liver oil from Norway gave rise to gas chromatographic peaks in the region expected for DDT, DDE, and TDE, but paper chromatography indicated the presence of halogenated compounds which were not known pesticides at all. \* \* \* In samples for the Nature Conservancy in Britain, compounds were found interfering with detection of p, p'-DDT and p, p'-TDE. \* \* \* Since 1966, the presence of p, p'-PCB has also been noted in the British, \* \* \* Dutch, \* \* \* and North American environments. Polychlorinated biphenyls have been identified in fish, wildlife, and the environment as cited above, but no attempt appears to have been made to look for them in human tissues or excreta. Past reports of levels of chlorinated hydrocarbon pesticides

might thus have been too high as a result of the presence of PCB. A further source of error might be introduced by storage of specimens in plastic containers. \* \* \* Analysis of environmental samples must be supported by qualitative and quantitative confirmation of the results. Too many papers have been published that incorporate no such quality control; nor have potential sources of error been considered. Especially when the results are reported as positive near the lower limits of detection of the gas chromatographic method (which is often the case), the results may be absolutely misleading [emphasis supplied]. The mass of materials in question is then also insufficient for qualitative and quantitative corroboration of the results by other techniques of analysis. VII-4, pp. 257-259; Supp. App. 626-627.

In a word, most gas chromatographic assays have significantly overstated the amount of DDT actually in samples due to the recently discovered presence of PCB's.

In summarizing research by various investigators, Dr. Anderson, et al., reported that some North American populations of peregrine falcons began to lay thin shelled eggs in 1947 shortly after DDT came into general use.<sup>25/</sup> They report that declining populations of bald eagles, ospreys, and peregrines displayed this shell thinning phenomenon, but stationary populations of ospreys, red-tailed hawks, great horned owls, and golden eagles showed no evidence of shell thinning. Dr. Lockie and others reported that the proportion of golden eagle eyries in west Scotland successively rearing young increased from 31% in the period 1963-65 to

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<sup>25/</sup> Significantly, the wide-spread use of plastics and other PCB sources and the extensive use of DDT were contemporaneous - i.e., the upsurge of both uses occurred immediately after World War II.

69% in the period of 1966-68. III-9, p. 383; Supp. App. 416. Concurrently, the level of dieldrin in the eagle's eggs dropped from 0.86 ppm (1963-65) to 0.34 ppm (1966-68). Residues of DDT and DDE were present throughout the period under study. The authors report that decrease in breeding success became appreciable only after dieldrin had replaced DDT as the principal organochlorine sheep dip. For that reason they regarded the residues of dieldrin as more significant than those of DDE in connection with the changes in breeding success reported. They indicated that this view was supported by a substantial and significant recovery in thickness of golden eagle shells since 1966 when dieldrin was banned as a sheep dip. III-9, p. 384; Supp. App. 417.

Drs. Enderson and Berger reported studies in which peregrine falcon adipose tissue, eggs, and prey species collected along the Peace, Slave and MacKenzie Rivers in Canada were analyzed for organochlorine residues. III-3, pp. 152-153; Supp. App. 413-414. Residues of DDT, DDE, TDE, dieldrin and heptachlor epoxide in fat in nine nesting adult female peregrines averaged 37.3, 284, 39.5, 3.3, and 4.4 ppm, respectively, but immature peregrines caught in migration in September 1966 in Wisconsin had only 0.9, 14.0, 0.6, 0.2, and 0.0 ppm of these same materials. Total residues in seven whole peregrine eggs averaged 27.1 ppm, about twice that found in peregrine eggs in Britain. A seemingly normal average of 2.3 viable eggs, or young, or both was found near the time of hatching in the 15 sites observed. The authors concluded that although adult peregrines in northern Canada carry high levels of organochlorine residues

acquired over a period of many months, and their eggs bear about twice the levels found in eggs from the stricken British peregrine population, <sup>26/</sup> the Canadian peregrines appear to be reproducing normally.

Although organochlorine insecticides have been implicated in reproductive failures of peregrine falcon populations, other factors unquestionably have also contributed to their decline. Dr. Hickey reported in 1942, before DDT came into use, that the peregrine falcon population was thinly distributed over an immense area and was decreasing in the more settled, civilized regions. III-34, p. 199; Supp. App. 454. The following is quoted from Dr. Hickey's report:

Without the special protection which has been given them (the peregrine falcon), half the eyries in Massachusetts would in the writer's opinion today be deserted. This, indeed, has already taken place in Connecticut where two long-used cliffs are now abandoned and a third, though occupied, has failed to produce young birds for the last 5 or 6 years. Id. at 199-200.

Dr. Hickey presented data to indicate that the peregrine population had decreased an estimated 10 to 18% within recorded times. Id. at 184. He also presented data showing that of an average 3.65 eggs laid per clutch only 2.80 fledgling hatched. Id. at 188. This would indicate

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26/ The birds allegedly threatened by extinction because of DDT are the bald eagle, osprey, peregrine falcon, Bermuda petrel, and the brown pelican; however, a comparison of surveys during the period 1935-42 with a survey in 1968 does not substantiate the claim with respect to the bald eagle or the osprey. VII-9a, pp. 227-228. As we have previously shown, the Bermuda petrel was virtually extinct almost 300 years ago.

that one egg in every set failed to hatch. Other possible reasons given for the decline of the peregrine population were egg predation by mammals, such as racoons, undue molestation by picknickers, hikers, egg collectors, adverse weather conditions, fledglings falling from the nest, and, most important of all, mortality from hunters. Dr. Hickey makes the following statements:

Man is the adult peregrine's worst enemy [emphasis supplied]. Birds are shot at all seasons in States that protect them as well as in those that do not, on private lands, and on public reservations. This shooting has somewhat decreased in recent years especially since the abolition of shore bird gunning, but it is still carried on by hunters, by boys, and by game protectors. \* \* \* In three reports of young birds being shot on their nesting ledge the gunners are given as a game warden, a pigeon fancier (the ledge contained a number of racing pigeon bands), and an unknown party. At one site in Kentucky, mountaineers claim that while they have not been able to hit an adult, not a single young bird has left the local eyrie in recent years. As soon as the fledglings walk out on their nest ledge, they're shot off. III-34, pp. 189, 192; Supp. App. 452-453.

The situation regarding the peregrine falcon illustrates the high probability that if DDT were banned today these birds and other endangered species would continue to decline in numbers.

High concentrations of DDT in other birds can cause death; however, in those instances of bird mortalities that have been attributed to the use of DDT in a treated area, the depopulations in the area have been temporary. Dr. O'Brien reports that it has been observed frequently that the use of DDT for tree spraying, which gives rise to very high local contamination of the ground by DDT, is accompanied by large, temporary



reductions in the populations of robins and (to a lesser extent) other insectivorous birds, presumably because of DDT accumulation in their prey.<sup>27/</sup> III-84, p. 298; Supp. App. 498.

The British Advisory Committee on Pesticides and Other Toxic Chemicals, in a report issued in 1969, reported that the acute oral toxicity of DDT to birds is relatively low, the medium lethal dose being in excess of 500 mg/kg for most species. III-85, p. 10; Supp. App. 502. Under laboratory conditions even small birds such as house sparrows and green finches seem to tolerate amounts in the diet far exceeding those that they would normally encounter. They reported no evidence to suggest that acute DDT poisoning is occurring widely among birds in Britain.

Dr. Jukes has stated that by far the greatest effect of DDT on birds is to kill mosquitoes that carry serious diseases of wild birds, such as malaria, Newcastle disease, fowl pox and encephalitis.

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<sup>27/</sup> Dr. O'Brien cites a study in 1965 in which a reduction of 70% in the robin population was observed following a typical application of DDT on 670 acres. Indications were that death to robins occurred when brain levels of DDT plus DDD, plus DDE rose above 50 ppm. In comparison with a nearby unsprayed area that served as a control, the robin population returned to almost normal levels in the sprayed area within a few months, presumably by influx from other areas. Dr. O'Brien further states that despite the documented depletions of song birds following insecticide treatments, there is no evidence for a country-wide diminution in bird population in parallel with insecticide use. He states that Audubon Society figures show very large increases in robin and red-winged black-bird populations between 1940 and 1960, whereas, populations of the bald eagle have shown a steady decline. He also reports short-term exposure to high concentrations of DDT has no deleterious effects, gross or subtle, and that spring nests containing eggs of 12 common species of birds, including robins, various sparrows, and pheobes at a rate equivalent to 5 pounds/acre of DDT have no effects on hatching or subsequent development.



While DDT is moderately toxic to honey bees, it is not as toxic as possible substitutes, including Azodrin, carbaryl, malathion, and parathion. IV-4, p. viii; IV-11, p. 1; Supp. App. 532, 601. The report by the British Advisory Committee on Pesticides and Other Toxic Chemicals states that DDT has been implicated only on rare occasions in bee poisoning incidents in Great Britain. III-85, p. 10; Supp. App. 502. During the years 1956-65, when 290 samples of bees (including more than one sample from individual alleged incidents) were examined, only two incidents of poisoning by DDT were recorded. Experience in the United States has been similar.

There have been incidents in which DDT in lakes and streams was reported to be a factor in fish mortality and reproduction failures. II-22, pp. 210-211; III-54, p. 19; Supp. App. 395-396, 487. The situation with respect to fish kills constitutes but yet another example of the overemphasis in the allegations lodged against DDT. Specifically, only 2.2 percent of the 14,826,214 fish kills reported in the United States in 1968 were caused by all types of insecticides and other poisons. Pollution Caused Fish Kills: 1968, Federal Water Pollution Control Administration. Industrial, municipal and transportation wastes were responsible for 93.6 percent of the kills. Ibid. Despite these tragic episodes involving fish, the Secretary's scientists know of no reports of endangerment of any species of fish as a result of the use of DDT, and the harvest of fish is continually increasing. III-35; III-38; Supp. App. 458, 463, 481-483.

As we have shown, supra, pp. 6-7, the Secretary has already issued notices of cancellation with respect to all DDT uses "in aquatic environments, marshes, wetlands, and adjacent areas, except those which are essential for the control of disease vectors as determined by public health officials." 34 F.R. 18827. We submit that a consideration of the scope of the problem with respect to fish in proper perspective shows that the Secretary's action was entirely proper.<sup>28/</sup>

Dr. Odum, et al., report that DDT and its metabolites accumulate in organic plant detritus within estuaries and may exist there for many years. III-53, p. 576; Supp. App. 486. They report that the residues appear to be most abundantly associated with particulates having diameters of 250 to 1,000 microns. Detritus particulates of this size are ingested by many organisms and associated DDT residues may enter diverse food chains. They report that fiddler crabs were fed natural detritus containing DDT residues (10 ppm) during an 11-day experiment and showed mostly modified behavior associated with a three-fold increase in DDT residues in the muscle of the large claw. The hereinbefore mentioned cancellation action is also responsive to the detritus feeder situation.

With regard to reports that DDT inhibits photosynthesis in phytoplankton, the work group undertaking a Study of Critical Environmental Problems (SCEP) under the sponsorship of M.I.T. recently reported the following:

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<sup>28/</sup> Dr. Turner reported that the amount of DDT in fish caught in Connecticut rivers and lakes had decreased since large scale spraying with the compound was progressively restricted. III-50, p. 1 and addendum, p. 5; Supp. App. 484-485.

\* \* \* The effect of DDT on the ability of ocean phytoplankton to convert carbon dioxide into oxygen is not considered significant. The concentration necessary to induce significant inhibitions exceeds expected concentrations in the open ocean by ten times its solubility (1 ppb) in water. III-106, p. 9; Supp. App. 504.

As we have previously noted, the AMA considers the thesis that DDT significantly reduces photosynthesis in phytoplankton unproved speculation. VII-5, p. 1056; Supp. App. 631.

In short, there is no evidence of harm to the vast majority of non-target organisms as a result of the use of DDT. III-84, pp. 297-299, 304; III-8, p. 683; III-9, pp. 385-386; Supp. App. 497-500, 415, 418-419.

A review of animal populations shows no overall decline but, to the contrary, the harvest of fish and wildlife is continually increasing. III-38; III-33, III-35; III-36, pp. 15, 21; III-37; III-37a; Supp. App. 468. DDT is beneficial to wildlife to the extent that it has protected their habitat and health from defoliating insects and disease vectors; and it plainly is not the major disruption to wildlife. Other variable factors are infinitely more significant, such as human encroachment on natural habitats, climatic changes, ecological changes, natural species extinction, and many other factors. III-1, pp. 61-89; III-10, p. 223; III-31, p. 1; III-32, p. 3; III-34, pp. 189, 192, 199-200, 202; III-85, pp. 5, 11; Supp. App. 420, 432-433, 452-456, 501, 503.

Modern investigative and research techniques show that many detriments previously imputed to DDT may, in fact, be attributable to PCB's. In these circumstances, the Secretary quite properly declined to ban DDT summarily and decided to continue to adhere to a policy that would effect an orderly discontinuation of uses that are not essential to the public

health and welfare. The propriety of that decision becomes particularly obvious when the adverse effects of DDT on limited species of fish and wildlife are juxtaposed to the enormous benefits mankind has derived from the use of DDT.<sup>29/</sup>

3. The Total Value of DDT to Mankind Is Inestimable,  
and Is Comprised of Nutritional, Economic and  
Social Benefits

DDT is one of the most useful pesticidal chemicals that the farmer has ever had. It provides a tool to control a wide variety of pests which previously could not be controlled. IV-8, pp. 125-159; Supp. App.542-574. The yield per acre of farm crops has been increased, the quality improved, and the cost of production steadily decreased as a consequence of the use of DDT. IV-3, p. 111; IV-8, p. 155; VII-1, p. 2; VII-3, pp. 2-3; Supp. App.525,572,608-610. The use of DDT assures adequate supplies of certain food and fiber crops. Its broad spectrum insecticidal properties, combined with long residual life under many conditions and relative safety in handling, make it desirable for many pest control purposes.

During the past quarter of a century, nations in all parts of the world have benefitted from increasing use of the synthetic organic

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<sup>29/</sup> The Departments of Agriculture, Interior, and HEW continuously monitor pesticide residue levels to safeguard the public health and welfare. All of the vital components of the environment - i.e., soil, water, air, food and feed, human, wildlife, fish and estuaries - are under constant surveillance by virtue of the National Pesticide Monitoring Program. See, e.g., Catalog of Federal Pesticide Monitoring Activities in Effect July 1967, Federal Committee on Pest Control.

pesticidal chemicals. Through use of these chemicals, agricultural productivity and quality have been increased to an unprecedented level.<sup>30/</sup> VII-3, p. 2; Supp. App. 609.

For some time after World War II, DDT was the only insecticide that permitted economical control of many agricultural and forest pests. Researchers have since found other effective insecticides for many of the insect pests. Domestic use of DDT declined to 32.8 million pounds in 1968 from a peak of 78.7 million pounds in 1959. IV-5, p. 38; Supp. App. 540. DDT has been and still is of great value to American farmers and consumers, especially on cotton, fruits and vegetables, peanuts, and soybeans. IV-2, pp. 10-12, IV-3, pp. 111, 1-2; Supp. App. 522-523, 525-526.

Cotton growers use most of the DDT that U. S. farmers buy. They use DDT to control a dozen insects, including the bollworm, the pink bollworm, cotton fleahopper, and thrips. Cotton is the fifth most valuable crop in the United States with a farm value of \$1.3 billion. It is produced on 10.3 million acres which receives 44 percent of all insecticides used by farmers. IV-2, p. 10; Supp. App. 522.

Significant but decreasing amounts of DDT are used on fruits and vegetables. The use of DDT on fruit dropped from 1.9 million pounds on

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<sup>30/</sup> For example, in 1946 most of the potato acreage in Maine was treated with DDT to control aphids that transmit the virus of the leafroll disease of potato. DDT was merely added as substitute for rotenone to the usual fungicide sprays and applied two to ten times. The average yield for the State that year was 355 bushels per acre, a 28% increase over the average of 277 bushels for the previous ten years. The yield steadily increased to 450 bushels per acre in 1950, a 62% increase. These increases largely have been due to better control of aphids. In early trials, applications of DDT increased production of onions from 14,000 to almost 22,000 pounds per acre. IV-8, p. 155; Supp. App. 572.

0.7 million acres in 1964 to 1.5 million pounds on 0.5 million acres in 1966; on vegetables it dropped from 1.7 million pounds on 0.7 million acres to 1.4 million pounds on 0.8 million acres during the same period. IV-3, p. 6; Supp. App. 529. In 1966, only 2% of the farm use of DDT, 0.5 million pounds, was on livestock and livestock areas. IV-3, p. 5; Supp. App. 528.

The sudden suspension of the registration for the use of DDT would be disastrous to the cotton industry in the geographic area where pests exist which can only be controlled safely and effectively by DDT. Such action would also have a wide-ranging impact on the textile and cotton-seed feed and oil industries. Reductions in these industries would create serious economic problems for thousands of workers and would have a substantial impact on the economy of the entire Nation. The Economic Research Service, USDA, has estimated that an 83% reduction of the use of DDT on cotton in 1966 would have required more frequent applications of less effective, significantly more hazardous, organophosphorus alternatives, at an increased cost of \$15.4 million.<sup>31/</sup> IV-2, pp. v, 12, 29; App. 521, 523-524.

There are some insects presently controlled by DDT for which there is no adequate alternative pesticide. These insects include various species of cutworms that have a broad geographical distribution and attack a wide variety of crops, as well as Heliothis zea - known as the

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<sup>31/</sup> This figure does not take into account the substantial increase in crop damage that would occur in the absence of DDT.



bollworm on cotton, the fruitworm on tomatoes, and the corn earworm on corn and other crops - and, Heliothis virescens, another noxious insect that attacks the bolls of cotton. IV-4. These insects are among the most destructive pests of cotton, beans, and sweet corn.

Available alternative substitutes have disadvantages not present in DDT. For example, insecticides such as methyl parathion, Azodrin, and others provide substantial control of bollworms on cotton, but they must be applied more frequently and are decidedly more hazardous because they are acutely toxic to nontarget organisms, including man, wildlife and beneficial insects.<sup>32/</sup> In the total absence of insecticide treatments, the bollworm, a native pest, is partially controlled by beneficial insects. However, other serious, damaging pests, such as the boll weevil, cotton fleahopper, and lygus bugs, are not adequately controlled except through

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<sup>32/</sup> The following insecticides are highly toxic to mammals and may be fatal if swallowed, inhaled, or absorbed through the skin; they should be applied only by a person who is thoroughly familiar with their hazards and who will assume full responsibility for proper use and comply with all the precautions on the labels: Azinphosmethyl, Azodrin, Bidrin, carbophenothion, demeton, dichloropropane-dichloropropene mixture, disulfoton, DN-111, endrin, EPN, methyl parathion, Methyl Trithion, mevinphos, nicotine sulfate, parathion, phorate, phosphamidon, Telone, and tepp. IV-4, p. v; Supp. App. 530.

The following materials are highly toxic to bees and should not be applied to plants during hours when bees are visiting them: Aldrin, azinphosmethyl, Azodrin, Benzene hexachloride, Bidrin, calcium arsenate, carbaryl, chlordane, Clodrin, diazinon, dichlorvos, dieldrin, dimethoate, EPN, fenthion, heptachlor, lead arsenate, lindane, malathion, methyl parathion, Methyl Trithion, mevinphos, naled, parathion, phosphamidon, sabadilla, and tepp. Destruction of bees can reduce pollination and cause crop losses when insecticides are applied as sprays or dusts to seed crops, melons, and fruits in bloom. Carbaryl and ultra low volume malathion remain hazardous to bees for several days after application. IV-4, p. viii; Supp. App. 532.



insecticide treatments, and the organophosphorus and carbamate compounds are far more detrimental than DDT to the beneficial insects that help control the bollworm, especially when used on a wide scale in a monoculture environment.

In 1967, wide-scale application of Azodrin and carbaryl for control of the pink bollworm in California and Arizona caused serious losses to honey bee populations. Similar losses were experienced in the State of Washington as a result of the use of carbaryl on sweet corn to control the corn earworm. IV-11, p. 1; Supp. App. 601.

There are a number of other important pest problems for which DDT will be needed until more satisfactory alternatives can be made available. One of these is in the control of the white fringed beetle for which there is no effective nonpersistent insecticide. DDT is the treatment of choice for control of this pest on potatoes, peanuts, and turnips. Additionally, there is no alternative for DDT available for the control of the sweet potato weevil in storage.

The nonorganochlorine substitutes for DDT are predominantly organophosphorus chemicals, several carbamate chemicals, and several botanical materials. The carbamates and the organophosphorus compounds are highly toxic to beneficial insects, especially to honey bee colonies. IV-11, p. 1; Supp. App. 601. The botanical materials (pyrethrins rotenone, ryania, nicotine sulfate, and sabadilla) are not effective substitutes for most uses of DDT, as indicated by their infrequent recommendation as an alternative for DDT. II-11, p. 3; IV-4; 268pp; Supp. App. 342.

Intensive investigations are underway by this Department and other research institutions with respect to biological and selective chemical methods to replace or supplement insecticides for pest control. Some of these methods offer great promise in controlling some of our major insect pests.<sup>33/</sup> However, until the alternative methods are fully developed, we

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<sup>33/</sup> One of the most desirable means of controlling agricultural pests is through the development of crop varieties that resist insect attack; however, development requires long years of tedious research and it will be some time before we can expect resistant crop varieties to replace the need for DDT and other pesticides. IV-10, p. 17; Supp. App. 597.

Cultural methods have long been important in insect control. These methods involve practices such as destruction of crop plants as soon as possible after harvest to prevent further reproduction of insects, tillage of soil to destroy insects, rotation of crops to minimize insect reproduction, and early or delayed planting to avoid high emerging insect populations. However, while such cultural practices are often significant factors in pest control, use by themselves seldom provides dependable solutions to insect problems. IV-10, pp. 17-18; Supp. App. 597-598.

The use of insects for their own destruction by sterility or other genetic means is a new approach to insect control that holds great promise. The method involves the mass production, sterilization, and release of large numbers of insects to compete with the natural fertile population in mating. This method of pest control is, however, highly sophisticated and requires a thorough understanding of the biology, ecology, and population dynamics of the insect to be controlled. The rearing of millions or even billions of insects to adequately overflow the natural population requires the development of special insect rearing techniques and facilities, and is not generally feasible at this time. IV-10, p. 18; Supp. App. 598.

Conventional biological control involving the use of insect predators and parasites has been under investigation in the Department for more than 80 years. The work includes world exploration to discover parasites and predators that might be useful, introduction of these organisms into the United States, evaluation of the effectiveness of the pest control provided, and the distribution and establishment of the organisms so that they become part of the environment and contribute to the control of destructive insect pests.

Studies are also underway to evaluate various pathogenic agents of insect pests as possible means of control. The pathogens under investigation appear to be highly specific in that they infect only certain insect species and do not appear to be transmissible to other organisms, including mammals. However, more extensive toxicological data must be submitted to provide complete insurance of safety before such agents can be approved by the Food and Drug Administration and the Department of Agriculture for use on food crops.

must continue to rely on conventional insecticides to deal with most of the insects adversely affecting health and agricultural productivity. IV-10, p. 16; VII-3, pp. 25-26; Supp. App. 596, 614-615.

Decisions regarding substitute pesticides for existing DDT uses involve many complex considerations. The toxicity of the pesticide, the handling requirements, the impact on man and his environment under the particular conditions of use must be determined before substitutions can be made. DDT has been more intensively studied by toxicologists, pharmacologists, biochemists, entomologists, ecologists, and public health experts than any other pesticide chemical. Substitutes cannot be recommended without detailed time-consuming evaluations; such evaluations are presently underway.

In a word, DDT is presently an irreplaceable control of many noxious insect pests, and it contributes immeasurably to human health and welfare.

4. Not One of Five Distinguished Committees of Professional Scientists That Have Studied Pesticides Has Recommended or Intimated That DDT Uses Should Be Summarily Banned. To the Contrary, All the Committees and the AMA Have Recommended an Orderly Phase-Out of DDT Uses

The President's Science Advisory Committee; the Environmental Pollution Panel of the President's Science Advisory Committee; the Committee on Persistent Pesticides Division of Biology and Agriculture, National Research Council-National Academy of Sciences; the Secretary's Commission on Pesticides and Their Relationship to Environmental Health (Mrak Report); and the Council on Occupational Health and the Council

on Environmental and Public Health of the American Medical Association have all studied the use of DDT and recommended the orderly reduction of uses and the retention of only those uses which are essential for the public health and welfare. VII-1, VII-2, VII-3, VII-4, VII-5. Of equal significance is the fact that - as we have shown, supra, pp. 45-46 - the decision of the Secretary under consideration in the instant case fully complies with the recommendation in the Mrak Report and is consonant with the AMA recommendations:

The use of DDT should be continued for the control of human diseases transmitted by DDT-susceptible vectors, such as malaria and typhus, in the United States only when other measures, including the use of less persistent or less harmful insecticides or other control measures, are ineffective, or where the benefits of using DDT instead of such other insecticides or other measures clearly outweigh the disadvantages. \* \* \*

The use of DDT should be continued for the control of pests on crops for which, at this time, no adequate alternative is available. VII-5, p. 1056; Supp. App. 631.

In view of the overwhelming and prestigious medical and scientific opinion in support of the Secretary's conclusion, a summary ban of all DDT would controvene the provisions of the FIFRA and the action of the Secretary is well-founded and rational.

# CONCLUSION

For the foregoing reasons, it is respectfully submitted that the petition for review should be dismissed for lack of jurisdiction. In the alternative, the decision of the Secretary should be affirmed.

WILLIAM D. RUCKELSHAUS,  
Assistant Attorney General,  
ALAN S. ROSENTHAL,  
Attorney,  
Department of Justice,  
Washington, D. C. 20530.

CHARLES W. BUCY,  
Assistant General Counsel,  
RAYMOND W. FULLERTON,  
Attorney,  
Department of Agriculture,  
Washington, D. C. 20250.

AUGUST 31, 1970



APPENDIX





## STATUTORY APPENDIX

The Administrative Procedure Act provides in pertinent part:

Sec. 10, 5 U.S.C. § 701:

(a) This chapter applies, according to the provisions thereof, except to the extent that--

\* \* \*;

(2) agency action is committed to agency discretion by law.

Sec. 10(e), 5 U.S.C. § 706:

To the extent necessary to decision and when presented, the reviewing court shall decide all relevant questions of law, interpret constitutional and statutory provisions, and determine the meaning or applicability of the terms of an agency action. The reviewing court shall--

(1) compel agency action unlawfully withheld or unreasonably delayed; and

(2) hold unlawful and set aside agency action, findings, and conclusions found to be--

(A) arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law;

(B) contrary to constitutional right, power, privilege, or immunity;

(C) in excess of statutory jurisdiction, authority, or limitations, or short of statutory right;

(D) without observance of procedure required by law;

(E) unsupported by substantial evidence in a case subject to sections 556 and 557 of this title or otherwise reviewed on the record of an agency hearing provided by statute; or

(F) unwarranted by the facts to the extent that the facts are subject to trial de novo by the reviewing court.

In making the foregoing determinations, the court shall review the whole record or those parts of it cited by a party, and due account shall be taken of the rule of prejudicial error.

Sec. 6, 5 U.S.C. § 1005:

Except as otherwise provided in this chapter--

(a) Any person compelled to appear in person before any agency or representative thereof shall be accorded the right to be accompanied, represented, and advised by counsel or, if permitted by the agency, by other qualified representative. Every party shall be accorded the right to appear in person or by or with counsel or other duly qualified representative in any agency proceeding. So far as the orderly conduct of public business permits, any interested person may appear before any agency or its responsible officers or employees for the presentation, adjustment, or determination of any issue, request, or controversy in any proceeding (interlocutory, summary, or otherwise) or in connection with any agency function. Every agency shall proceed with reasonable dispatch to conclude any matter presented to it except that due regard shall be had for the convenience and necessity of the parties or their representatives. Nothing herein shall be construed either to grant or to deny to any person who is not a lawyer the right to appear for or represent others before any agency or in any agency proceeding.

The Federal Insecticide, Fungicide, and Rodenticide Act, as amended (61 Stat. 163, as amended, 7 U.S.C. § 135 et seq.), provides in pertinent part:

Sec 2, 7 U.S.C. § 135:

For the purposes of sections 135--135k of this title--

(z) The term "misbranded" shall apply--

\* \* \*;

(2) to any economic poison--

\* \* \*;

(c) if the labeling accompanying it does not contain directions for use which are necessary and if complied with adequate for the protection of the public;

(d) if the label does not contain a warning or caution statement which may be necessary and if complied with adequate to prevent injury to living man and other vertebrate animals, vegetation, and useful invertebrate animals;

\* \* \*;

(g) if in the case of an insecticide, nematocide, fungicide, or herbicide when used as directed or in accordance with commonly recognized practice it shall be injurious to living man or other vertebrate animals, or vegetation, except weeds, to which it is applied or to the person applying such economic poison;

Sec. 4, 7 U.S.C. § 135b:

(c) If it does not appear to the Secretary that the article is such as to warrant the proposed claims for it or if the article and its labeling and other material required to be submitted do not comply with the provisions of sections 135--135k of this title, he shall notify the applicant for registration of the manner in which the article, labeling, or other material required to be submitted fail to comply with said sections so as to afford the applicant for registration an opportunity to make the corrections necessary. If, upon receipt of such notice, the applicant for registration does not make the corrections, the Secretary shall refuse to register the article. The Secretary, in accordance with the procedures specified herein, may suspend or cancel the registration of an economic poison whenever it does not appear that the article or its labeling or other material required to be submitted complies with the provisions of sections 135--135k of this title. Whenever the Secretary refuses registration of an economic poison or determines that registration of an economic poison should be canceled, he shall notify the applicant for registration or the registrant of his action and the reasons therefor. Whenever an application for registration is refused, the applicant, within thirty days after service of notice of such refusal, may file a petition requesting that the matter be referred to an advisory committee or file objections and request a public hearing in accordance with this section. A cancellation of registration shall be effective thirty days after service of the foregoing notice unless within such time the registrant (1) makes the necessary corrections; (2) files a petition requesting that the matter be referred to an advisory committee; or (3) files objections and requests a public hearing. Each advisory committee shall be composed of experts, qualified in the subject matter and of adequately diversified professional background selected by the National Academy of Sciences and shall include one or more representatives from land-grant colleges. The size of the committee shall be determined by the Secretary. Members of an advisory committee shall receive as compensation for their services a reasonable per diem, which the Secretary shall by rules and regulations prescribe, for time actually spent in the work of the committee, and shall in addition be reimbursed for their necessary traveling and subsistence expenses while so serving away from their places of residence, all of which costs may be assessed against

the petitioner, unless the committee shall recommend in favor of the petitioner or unless the matter was referred to the advisory committee by the Secretary. The members shall not be subject to any other provisions of law regarding the appointment and compensation of employees of the United States. The Secretary shall furnish the committee with adequate clerical and other assistance, and shall by rules and regulations prescribe the procedures to be followed by the committee. The Secretary shall forthwith submit to such committee the application for registration of the article and all relevant data before him. The petitioner, as well as representatives of the United States Department of Agriculture, shall have the right to consult with the advisory committee. As soon as practicable after any such submission, but not later than sixty days thereafter, unless extended by the Secretary for an additional sixty days, the committee shall, after independent study of the data submitted by the Secretary and all other pertinent information available to it, submit a report and recommendation to the Secretary as to the registration of the article, together with all underlying data and a statement of the reasons or basis for the recommendations. After due consideration of the views of the committee and all other data before him, the Secretary shall, within ninety days after receipt of the report and recommendations of the advisory committee, make his determination and issue an order, with findings of fact, with respect to registration of the article and notify the applicant for registration or registrant. The applicant for registration, or registrant, may, within sixty days from the date of the order of the Secretary, file objections thereto and request a public hearing thereon. In the event a hearing is requested, the Secretary shall, after due notice hold such public hearing for the purpose of receiving evidence relevant and material to the issues raised by such objections. Any report, recommendations, underlying data, and reasons certified to the Secretary by an advisory committee shall be made a part of the record of the hearing, if relevant and material, subject to the provisions of section 1006(c) of Title 5. The National Academy of Sciences shall designate a member of the advisory committee to appear and testify at any such hearing with respect to the report and recommendation of such committee upon request of the Secretary, the petitioner, or the officer conducting the hearing: Provided, That this shall not preclude any other member of the advisory committee from appearing and testifying at such hearing. As soon as practicable after completion of the hearing, but not later than ninety days, the Secretary shall evaluate the data and reports before him, act upon such objections and issue an order granting, or cancelling the registration or requiring modification of the claims or the labeling. Such order shall be based only on substantial evidence of record at such hearing, including any report, recommendations, underlying data, and reason certified to the Secretary by an advisory committee, and shall set forth detailed findings

of fact upon which the order is based. In connection with consideration of any registration or application for registration under this Section, the Secretary may consult with any other Federal agency or with an advisory committee appointed as herein provided. Notwithstanding the provisions of Section 135a(c)(4) of this title, information relative to formulas of products acquired by authority of this section may be revealed, when necessary under this section, to an advisory committee, or to any Federal agency consulted, or at a public hearing, or in findings of fact issued by the Secretary. All data submitted to an advisory committee in support of a petition under this section shall be considered confidential by such advisory committee: Provided That this provision shall not be construed as prohibiting the use of such data by the committee in connection with its consultation with the petitioner or representatives of the United States Department of Agriculture, as provided for herein, and in connection with its report and recommendations to the Secretary. Notwithstanding any other provision of this section, the Secretary may, when he finds that such action is necessary to prevent an imminent hazard to the public, by order, suspend the registration of an economic poison immediately. In such case, he shall give the registrant prompt notice of such action and afford the registrant the opportunity to have the matter submitted to an advisory committee and for an expedited hearing under this section. Final orders of the Secretary under this section shall be subject to judicial review, in accordance with the provisions of subsection (d) of this section. In no event shall registration of an article be construed as a defense for the commission of any offense prohibited under section 135a of this title.

(d) In a case of actual controversy as to the validity of any order under this section, any person who will be adversely affected by such order may obtain judicial review by filing in the United States court of appeals for the circuit wherein such person resides or has his principal place of business, or in the United States Court of Appeals for the District of Columbia Circuit, within sixty days after the entry of such order, a petition praying that the order be set aside in whole or in part. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary, or any officer designated by him for that purpose, and thereupon the Secretary shall file in the court the record of the proceedings on which he based his order, as provided in section 2112 of Title 28. Upon the filing of such petition the court shall have exclusive jurisdiction to affirm or set aside the order complained of in whole or in part. The findings of the Secretary with respect to questions of fact shall be sustained if supported by substantial evidence when considered on the record as a whole, including any report and recommendation of an advisory committee. If application is made to the court for leave to adduce additional evidence, the court may order such additional evidence to be taken before the Secretary, and to be adduced upon the hearing in such manner and upon such terms and conditions as to the court may seem



proper, if such evidence is material and there were reasonable grounds for failure to adduce such evidence in the proceedings below. The Secretary may modify his findings as to the facts and order by reason of the additional evidence so taken, and shall file with the court such modified findings and order. The judgment of the court affirming or setting aside, in whole or in part, any order under this section shall be final, subject to review by the Supreme Court of the United States upon certiorari or certification as provided in section 1254 of Title 18. The commencement of proceedings under this section shall not, unless specifically ordered by the court to the contrary, operate as a stay of an order. The court shall advance on the docket and expedite the disposition of all causes filed therein pursuant to this section.

Sec. 8, 7 U.S.C. § 135f:

(a) Any person violating section 135a (a) (1) of this title shall be guilty of a misdemeanor and shall on conviction be fined not more than \$1,000.

(b) Any person violating any provision other than section 135a (a) (1) of this title shall be guilty of a misdemeanor and shall upon conviction be fined not more than \$500 for the first offense, and on conviction for each subsequent offense be fined not more than \$1,000 or imprisoned for not more than one year, or both such fine and imprisonment: Provided, That an offense committed more than five years after the last previous conviction shall be considered a first offense. An article the registration of which has been terminated may not again be registered unless the article, its labeling, and other material required to be submitted appear to the Secretary to comply with all the requirements of sections 135--135k of this title.

(c) Notwithstanding any other provision of this section, in case any person, with intent to defraud, uses or reveals information relative to formulas of products acquired under the authority of section 135b of this title, he shall be fined not more than \$10,000 or imprisoned for not more than three years, or both such fine and imprisonment.

(d) When construing and enforcing the provisions of sections 135--135k of this title, the act, omission, or failure, of any officer, agent, or other person acting for or employed by any person shall in every case be also deemed to be the act, omission, or failure of such person as well as that of the person employed.

Sec. 9, 7 U.S.C. § 135g:

(a) Any economic poison or device that is being transported from one State, Territory, or District to another, or, having been



transported, remains unsold or in original unbroken packages, or that is sold or offered for sale in the District of Columbia or any Territory, or that is imported from a foreign country, shall be liable to be proceeded against in any district court of the United States in the district where it is found and seized for confiscation by a process of libel for condemnation--

(1) in the case of an economic poison--

(a) if it is adulterated or misbranded;

(b) if it is not registered pursuant to the provisions of section 135b of this title;

(c) if it fails to bear on its label the information required by Sections 135-135k of this title; or

(d) if it is a white powder economic poison and is not colored as required under said sections; or

(2) in the case of a device if it is misbranded.

(b) If the article is condemned it shall, after entry of the decree, be disposed of by destruction or sale as the court may direct and the proceeds, if sold, less the legal costs, shall be paid into the Treasury of the United States, but the article shall not be sold contrary to the provisions of sections 135--135k of this title or of the laws of the jurisdiction in which it is sold: Provided, That upon the payment of the costs of the libel proceedings and the execution and delivery of a good and sufficient bond conditioned that the article shall not be sold or otherwise disposed of contrary to the provisions of said sections or the laws of any State, Territory, or District in which sold, the court may direct that such articles be delivered to the owner thereof. The proceedings of such libel cases shall conform, as near as may be, to the proceedings in admiralty, except that either party may demand trial by jury of any issue of fact joined in any case, and all such proceedings shall be at the suit of and in the name of the United States.

(c) When a decree of condemnation is entered against the article, court costs and fees, storage, and other proper expenses shall be awarded against the person, if any, intervening as claimant of the article.



## BIOGRAPHICAL APPENDIX

### Durham, Dr. William F.

From Leaders in American Science 1968-69, P. 186

DURHAM, WILLIAM FAY(Ph.D.), Chf., Pesticides Rsch. Lab., U.S. Pub. Hlth. Serv., P.O.Box 490, Perrine, Fla. 33157. Home Add.: 7850 SW 143rd St., Miami, Fla. 33158. BIOCHEMISTRY. b.: Esom Hill, Ga., Apr. 19, 1922. s.: George Fay and Lucile (Pennington) D. Edn.: A.B., Emory Univ., 1943; M.S., ibid., 1948; Ph.D., ibid., 1950. m.: Sara Sudderth, Sept. 20, 1947. c.: William F., Jr.; Garland P.B.; David. Exp.: Instr., Chem., Emory Jr. Coll., 1943-44; Instr., Biochem., Emory Med.Schl., 1947-50; Biochemist, Toxicol., Sect., Communicable Diseases Ctr., U.S. P.H.S., 1950-57; Chf., Wenatchee Field Sta., ibid., 1957-67; Clinical asst. Prof., Pharmacol., Univ. of Wash. Schl. of Med., 1966-67; Chf., Pesticide Rsch. Lab., U.S.P.H.S., Perrine, Fla., 1967---; Clin. Assoc. Prof., Pharmacol., Univ. of Miami Schl. of Med., 1967---. Mem.: Am. Chem. Soc.: Rsch. Soc.Am.; Am. Soc. Pharmacol. and Exptl. Therap.; Soc. Toxicol.; Sigma Alpha Epsilon; Rotary Internatl.; Fellow, Am. Assn. Adv. Sci. Contbr. to: Am. Med.Assn. Arch. industri. Hlth. Serv. Rec.: U.S. Navy, 1944-46. Areas of Rsch.: Toxicology of Pesticides.

### Hayes, Dr. Wayland J., Jr.

#### Curriculum vitae

Professor of Biochemistry. Division of Toxicology at Vanderbilt University School of Medicine. Nashville, Tennessee

#### Education:

B.S.	University of Virginia	1938
M.A.	University of Wisconsin	1940
Ph.D.	University of Wisconsin	1942
M.D.	University of Virginia	1946

Positions Held: Chief, Vector-Trans. Invest. Sec., Tech. Branch, Communicable Disease Center, U.S. Publ. Health Service, Savannah, Georgia 1947-1949.  
Chief, Toxicology Sec., Tech. Branch, Communicable Disease Center, U.S. Publ. Health Service, Savannah, Ga. 1949-1960  
Atlanta, 1960-1966.  
Associate Prof. of Pharm. (Voluntary), Emory Univ. Atlanta, Ga. 1962-1968

Chief Toxicologist, Pesticides Program, National Communicable Disease Center, U.S. Publ. Health Service, Atlanta, Georgia 1967-1968.  
Prof. of Biochem. Dept. of Biochem., Vanderbilt Univ. School of Medicine, Nashville, Tenn. 1968-present.

Principal Research Interest:

Zoology (especially morphology and taxonomy of Rhabdocoela)  
(9 papers published.)  
Tropical Medicine (especially transmission of Murine typhus)  
(5 papers published)  
Toxicology of Pesticides (83 papers published)

Societies and Related Activities:

Soc. of Tox. (Charter member) 1961-date, Publications Board 1966-1968, Council 1968-date.  
Amer. Soc. for Pharm. and Exper. Therapeutics 1958-date, Edit. Board, Jour. Pharm. and Experi. Therapeutics 1962-1964.  
Food and Cosmetics Tox., Honorary Advisory Board 1967-date.  
American College of Clinical Pharm. and Chemotherapy 1963-date.  
American Society of Trop. Medicine and Hygiene 1950-date  
Amer. Conf. of Govern. Ind. Hygienists 1961-date, threshold Limits Committee (ACGIH) 1961-date, Agricul. Health Comm. 1969-date.  
Amer. Assoc. for the Advancement of Science 1949-date.  
American Medical Association Service. 1949-1968, Edit. Board, Archives Environmental Health 1965-date.  
American Public Health Association 1963-1966  
National Pest Control Association (Honorary) 1958-date.  
Commissioned Officers Assoc. U.S. Publ. Health Service 1947-date.  
Sigma Xi. Initiated Univ. of Vir. Chapter, 1939.  
Alpha Omega Alpha. Initiated Univ. of Vir. Chapter, 1945. (Now inac)  
Phi Sigma. Initiated Univ. of Wisc. Chapter, 1942.

Committees and Panels:

Household and Economic Chem. Panel of the Council on Drugs, Amer. Medical Association 1963-date.  
Interdepartmental Com. on Pest Control 1953-1964.  
Res. Subcom. of the Fed. Com. on Pest Control 1964-1968.  
Res. Subcom. on Plant and Animal Pests of the Agric. Board, Nat. Res. Council. 1964-date.  
Committee on Food Prot. of the Food and Nutrition Board, Nat. Res. Council. 1969-date.  
Tox. Information Program Com. of the Div. of Med. Sciences, Nat. Research Council 1969-date.  
Expert Advisory Panel on Insecticides of the World Health Org. 1950-date.

Hoffman, Dr. William S.

From Leaders in American Science 1968-69, p. 312

HOFFMAN, WILLIAM SAMUEL (M.D.), Med. Dir., Sidney Hillman Hlth. Centre of Chicago, 333 South Ashland Blvd., Chicago, Ill. 60607. Home Add.: 6101 Sheridan Rd., Chicago, Ill. 60626. BIOCHEMISTRY; INTERNAL MEDICINE; MEDICAL ADMINISTRATION. b.: Baltimore, Md., July 5, 1899. s.: Louis B. and Lena (Miller) H. Edn.: A.B., Johns Hopkins Univ., 1918; Ph.D., Chem., ibid., 1922; M.D., Rush Med. Coll., Univ. of Chicago, 1929. M.: Miriam Berliner, July 26, 1928. C.: Paul Arthur; Nancy Regina LeVant. Exp.: Asst. in Physiol. Chem.; Johns Hopkins Med. Schl., 1922-25; Instr., ibid., 1925-27; Interne, Cook Co. Hosp., Chicago, Ill., 1929-31; Natl. Rsch. Coun., Fellow in Med., Rush Med. Coll., 1931-32; Prof. of Physiol. Chem., Chicago Med. Schl., 1932-44; Acting Dir., Hektoen Inst. for Med. Rsch., Chicago, 1944-55; Dir. of Biochem., ibid., 1945-53; Prof. Lectr. in Physiol., Univ. of Ill., Coll. of Med., 1948-53; Prof. Lectr. in Med., ibid., 1953---; Medical Dir., Sidney Hillman Hlth. Centre of Chicago, 1953-68; Med. Consult., V.A. Hosp., Hines, Ill., 1954---. Hon. Pos.: Emer. Mem., Bd. of Trustees, Diabetes Assn. of Greater Chicago; Former Assoc. Editor, Am. Jour. of Clin. Pathol. Mem.: Am. Med. Assn.; Chicago Soc. of Internal Med.; Soc. Exptl. Biol. and Med.; Am. Soc. Biol. Chemists; Central Soc. for Clin. Rsch.; Am. Diabetes Assn.; Fellow, Am. Coll. of Physicians; Fellow, Am. Soc. of Clin. Pathologists; Fellow, Am. Pub. Hlth. Assn.; Phi Alpha; Phi Delta Epsilon; Phi Beta Kappa; Alpha Omega Alpha; Sigma Xi; Inst. of Med. of Chicago. Author: Photometric Clinical Chemistry, 1941; The Biochemistry of Clinical Medicine, 3 Editions, 1954, 1959, and 1964. Contbr. to: Jour. of Biol. Chem.; Jour. of Clin. Investigation; Jour. of Lab. and Clin. Med.; Jour. of Am. Med. Assn.; Am. Jour. of Med.; Am. Jour. of Clin. Pathol.; Am. Jour. of Diseases of Children; Jour. of Nutrition; Arch. of Environmental Health. Serv. Rec.: U.S. Army, 1918. Areas of Rsch.: Methodology in Clinical Chemistry; Protein Nutrition; Renal Pathophysiology; Water and Electrolyte Metabolism; Gout; Diabetes; Pesticides.

Jensen, Dr. James H.

From Who's Who in America 1970-71, p. 1148

JENSEN, James Herbert, agriculturist; b. Madison, Neb., June 16, 1906; s. Jens and Eda (Hansen) J.: B.S., U. of Neb., 1928, A.M., 1930: student Columbia, 1931-32; Ph.D., U. of Wisconsin, 1935; D.Sc., North Carolina State University, Raleigh, 1966, LL.D., U. Neb., 1966; m. Lucille Christopher, Nov. 2, 1931; children--James Michael, Karen (Mrs. J. A. Bailey), Stephen, Roger, Asst. pathologist Tropical Plant Research Found., Baragua, Cuba, 1930-31, later was plant pathologist, N.C. Agrl. Expt. Sta., 1945-48; chief biology br., div. biology and medicine, A.E.C.,

Washington, 1948-49; chmn., sub-com. Nat. Com. Radiation Protection, 1949-57; prof. and head plant pathology, faculty N.C. State Coll. A. and E., 1949-53. Reynolds prof., 1951-53; provost, and prof. botany Ia. State Coll., 1953-61; president Oregon State U., Corvallis, Ore., 1961-69, prof. botany and plant pathology on leave, 1969---; agriculturist Rockefeller Found., Bangkok, 1969---. Mem. exec. com. Assn. State Univs. and Land-Grant Colls., 1962-64, pres., 1966-67, chmn., 1967-68; bd. visitors Air U., 1968---; mem. Nat. Commn. on Accrediting, 1964---; agrl. research planning com. U.S. Dept. Agr., 1964---; chmn. pesticides residues com. Nat. Academy of Science, 1964-65, chmn. persistent pesticides committee, 1967-68; president Associated Midwest Univs., 1958-59; mem. research adv. com. Boyce Thompson Inst.; mem. policy adv. bd. Argonne Nat. Lab., 1961-67. Fellow A.A.A.S., Am. Phytopathol. Soc. (pres. 1954-55); mem. Sigma Xi, Phi Kappa Phi. Author: Refugee Settlement in the Dominican Republic, 1942; also articles on plant viruses and diseases of tropical plants, profl. publs. Home: Bangkok, Thailand

Jukes, Dr. Thomas H.

Curriculum vitae

University of Toronto, B.S.A., 1930, Ph. D. (Biochemistry 1938). National Research Council Fellow in Medical Sciences, University of California, Berkeley, 1933-34. Instructor and Assistant Professor, University of California, College of Agriculture, Davis, 1934-42. American Cyanamid Company, 1942-63. Visiting Senior Research Biochemist, Princeton University, 1962-68. Professor-in-Residence, Medical Physics, 1963-; Assoc. Director, Space Sciences Laboratory; University of California, Berkeley, 1968-present; Member, Space Biology Advisory Subcommittee of the Space Science and Applications Steering Committee, NASA, 1969-.

Fields of Research: Vitamin B complex, folic acid antagonists in cancer chemotherapy, antibiotics in nutrition, nutritional deficiencies, amino acid code, protein synthesis, molecular evolution.

Author: B-vitamins for Blood Formation (book); Antibiotics in Nutrition (book); Molecules and Evolution (book); about 200 articles in scientific journals.

Member: American Society of Biological Chemists; American Institute of Nutrition (Council, 1941-46); American Chemical Society; American Society of Animal Science (Fellow, 1961-); Society for Experimental Biology and Medicine (Editorial Board, 1953-58); Biophysical Society.

Recent Pertinent Publications:

Matsubara, H., Saski, R., Singer, A., and Jukes, T. H., Specific Nature of Hydrolysis of Insulin and Tobacco Mosaic Virus Protein by Thermolysin. Arch. Biochem. and Biophys., 115:324 (1966).



- Jukes, T. H., *Molecules and Evolution*. Columbia Univ. Press, N.Y., pp. 1-285 (1966) (book).
- Cantor, C.R., and Jukes, T. H., The Repetition of Homologous Sequences in the Polypeptide Chains of Certain Cytochromes and Globins. *Proc. Natl. Acad. Sci., U.S.*, 56:177 (1966).
- Matsubara, H., Jukes, T.H., and Cantor, C.R., Structural and Evolutionary Relationships of Ferredoxins. *Brookhaven Symp.*, 21:201 (1968).
- Jukes, T. H., "Recent Problems in the Genetic Code" in Current Topics in Microbiology. 49:178 (1969), edited by Werner A. Braun (Springer-Verlag, Heidelberg).
- Jukes, T. H., and Cantor, C. R., Evolution of Protein Molecules. Academic Press, "Mammalian Protein Metabolism", vol. 3, p 21-132 (1969).
- King, J. and Jukes, T. H., "Non-Darwinian Evolution", *Science*, 164:788 (1969).
- Jukes, T. H., Evolutionary Pattern of Specificity Regions in Light Chains of Immunoglobulins. *Biochem. Genetics*, 9:109 (1969).

Knipling, Dr. Edward F.

Dr. Edward F. Knipling was born in Port Lavaca, Texas, in 1909. He received his B.S. degree from Texas A&M College in 1930, his M.S. in 1932, and his Ph.D. (in entomology) in 1947 from Iowa State University.

Dr. Knipling first worked for the Department as a field aid in the former Bureau of Entomology and Plant Quarantine at Tiahuallo, Mexico, assisting in field studies on the pink bollworm during the summer of 1930. In 1931 he was appointed as a junior entomologist to conduct research on the biology and control of the screw-worm at Menard, Texas. During the next few years he conducted research on various pests of livestock in various assignments of increasing importance at Galesburg, Illinois; Ames, Iowa; Valdosta, Georgia; and Menard, Texas. In 1940 he was placed in charge of research on mosquitoes of the Northwestern States, with headquarters at Portland, Oregon.

During World War II he had the important assignment of directing the work of the Orlando, Florida laboratory where he led in the development of DDT and other insecticides and repellents for use by the Armed Forces of this country and its allies in controlling the vectors of malaria, typhus, plague, and other diseases. The research at the Orlando laboratory received national and international recognition. The methods of control for the insects which transmit some of the most important diseases of man are being utilized throughout the world today.



From 1946 to 1953 Dr. Knipling directed the research on insects affecting livestock, man, households, and stored products from headquarters at Washington, D. C. During the last few months of 1953 he was assistant chief in charge of entomological research in the Bureau of Entomology and Plant Quarantine and since reorganization of the Department in 1953, he has served as Director of the Entomology Research Division with headquarters at Plant Industry Station, Beltsville, Maryland.

Dr. Knipling's entire career is centered around the continual improvement of methods for controlling injurious insects and for utilizing to fullest advantage the beneficial insects. He is the author of more than 150 technical publications relating to insects. He has concentrated research efforts on more effective and more desirable ways to meet insect problems. The recent program which eradicated the screw-worm from the Southeast was based on a concept that originated with him. In studies on the ecology, behavior, and mating habits of screw-worm flies in 1938, he speculated that it might be possible to eradicate isolated infestations by overwhelming the native flies with laboratory-reared insects carrying genetic deficiencies. He later encouraged entomologists working under his supervision to make further observations on the mating habits of screw-worm flies to determine ways of sterilizing the flies by chemical agents or by irradiation and to test the principle under laboratory conditions. End result, a new approach to insect control and even eradication due to his ingenuity and persistence in developing an idea.

Dr. Knipling is a strong proponent of the total population control concept or even eradication of insect populations by applying control measures against the total population in community-wide, regional, or national programs. He has pointed out the great advantage gained by employing different methods of controlling insects simultaneously into an integrated program.

The success of his leadership and scientific accomplishments is evidenced by his having been presented the United States of America Typhus Commission Medal by the Department of Defense in 1946; the Medal for Merit, awarded by the President of the United States in 1947; and the King's Medal for Service in the Cause of Freedom, awarded by Great Britain in 1948. In addition, he was commended by the Navy Department for the research under his direction which changed the entire methodology for control of insect-borne diseases. In 1958 Dr. Knipling received the Iowa State College Alumni Merit Award. The following year he was selected one of five scientists for the Progressive Farmer Magazine Men of the Year Award for Service to Southern Agriculture. In 1960 he received the U.S. Department of Agriculture's Distinguished Service Award and the Hoblitzelle National Award in the Agricultural Sciences (joint). He received the Ford Farming Magazine's Distinguished Service Award in 1961 and the John

Scott Award the same year. In 1962 he received an honorary Doctor of Science degree from Catawba College in North Carolina and was one of four recipients of the Texas A&M College Distinguished Alumni Awards. In December 1962 he received the Golden Plate Award of the Academy of Achievement, and in 1964 he received the American Agricultural Editors' Association National Award. In November 1965 he received the Entomological Society of America's Founders' Memorial Award. In April 1966 he was elected to the National Academy of Sciences, and in December 1966 he received the Rockefeller Public Service Award. The National Medal of Science for 1966 was presented to him by President Johnson on February 6, 1967. He received an honorary Doctor of Science degree from North Dakota State University in May 1967.

Dr. Knipling is a member of several scientific societies, including the Entomological Society of America (President in 1952 of the American Association of Economic Entomologists which is now consolidated with ESA); American Association for the Advancement of Science; Washington Academy of Sciences; the Entomological Society of Washington; Sigma Xi; American Mosquito Control Association; Insecticide Society of Washington; American Society of Tropical Medicine and Hygiene; and is a member of the Cosmos Club.

Dr. and Mrs. Knipling (Dr. Phoebe H. Knipling) reside at 2623 Military Road in Arlington, Virginia. They have five children. Mrs. Knipling is Science Supervisor in the Arlington, Virginia, secondary school system and chairman of Science Fair Programs in the Northern Virginia Secondary Schools. She is a Ph.D graduate of Iowa State College, having majored in protozoology and parasitology.

The following from INTERNATIONAL WHO'S WHO

Knipling, Edward Fred, B.S., M.S., PH.D.; American Agricultural research administrator and entomologist; b. 20 March 1909, Port Lavaca, Tex.; s. of Harry J. Knipling and Hulda Rasch Knipling; m. Phoebe Hall Knipling 1934; three s. two d.; ed. Texas A. and M. Univ. and Iowa State Univ. Entomologist, U.S. Dept. of Agriculture (U.S.D.A.) 31-, various research positions in veterinary and medical problems 31-42, Dir. Research programme for devt. of control measures for diseases among U.S. and Allied Mil. Forces 42, Principal Entomologist in charge of Research on Insects Affecting Men and Animals 46, Dir. of Entomology Research Div. of Agricultural Research Services, U.S.D.A. 53-; mem. Nat. Acad. of Sciences; awards include President's Medal for Merit, U.S. Army Typhus Comm. Medal, U.S. Dept. of Agriculture's Distinguished Service Medal, Rockefeller Public Service Award, Nat. Medal of Science, King's Medal for Services in the Cause of Freedom (U.K.). Leisure interests: Hunting with bow and arrow, fishing, watching sporting events. Publs. about 150 scientific articles, principally on entomology. Plant Industry Station, Beltsville, Md. 20705; Home: 2623 Military Road, Arlington, Va. 22207, USA. Telephone: GR4-6500, Ext. 377 (Office); JA7-5668 (Home).

Laws, Dr. Edward R., Jr.

Education

Bronx High School of Science, Bronx, New York: Academic Diploma with Honors, September 1951 - June 1955.  
Princeton University, Princeton, New Jersey, September 1955 - June 1959  
Obtained an A.B. cum laude in Economics and Sociology under special program in American Civilization.  
The Johns Hopkins University School of Medicine, Baltimore, Maryland, September 1959 - June 1963.  
Obtained an M.D. Intern and Fellow in surgery under Dr. Alfred Blalock, Chief of the Services, at the Johns Hopkins Hospital in Baltimore, Md., from July 1963 - June 1964.  
Assistant Resident and Fellow in the Division of Neurosurgery (Dr. A. Earl Walker), Chief of Services at Johns Hopkins Hospital, Baltimore, Maryland, July 1966 - present.  
Received Certificate and License Diplomate, National Board of Medical Examiners, July 1964.  
Received Maryland State License to Practice Medicine and Surgery, October 1966.

Professional Societies

American Medical Association  
Southern Medical Association  
American College of Surgeons, Candidate Group, Johns Hopkins Medical and Surgery Society  
Baltimore Neurological Society  
National Honors Society

Awards and Honors

Rhodes Scholarship Candidate, State of Florida, 1959  
Woodrow Wilson Fellowship, 1959  
National Foundation Health Scholar, 1959-1963  
Recipient USPHS Institute Cancer Teaching Grant, 1960  
USPHS Experimental Training Grant, 1960-1961  
Henry Strong Denison Scholar in Medical Research, 1962-1963  
Recipient Johns Hopkins full scholarship, 1968  
The Southern Medical Association Residence Training Grant, 1968-1969

Military Service

Lt-Lcdr, USPHS, July 1964 - July 1966  
Presently inactive in Reserves  
Active duty:  
Billot, Asst. Chief, Toxicology Section, National Communicable Disease Center, Atlanta, Georgia

### Research Experience

Brain Tumor Histochemistry, 1960 - present  
Basic and Applied Toxicology, 1964-1966  
Cytochemistry of Brain, 1966 - present  
Electronmicroscopy of Brain Tumors, 1969 - present

### Teaching & Consultantship

Lecturer in Toxicology, USPHS, Aedes aegypti Eradication Program 1965-1966  
Lecturer in Neurological Surgery, Johns Hopkins University School of  
Medicine and John Hopkins Hospital School of Nursing, 1966 - present  
Consultant in Toxicology, USPHS Pesticides Program, Atlanta, Ga., USPHS  
Aedes aegypti Eradication Program  
Consultant of Puerto Rico, U.S. Virgin Islands, State of Hawaii, Alabama  
State Health Department, 1965-1967

### Presentations

Brain Tumor Histochemistry, American Assn. Neuropathologists, 1961  
Enzyme Studies Meningiomas, American College of Surgeons Sectional Meeting,  
1962  
Enzymes and Brain Tumors, Baltimore Neurological Assn., 1962  
Depth Electrode Studies in Temporal Lobe Epilepsy, Central EEG Society,  
1968  
A.T.P.-ases and Human Brain Tumors, Congress of Neurosurgeons, 1969  
EEG Changes and Hydrocephalus with Shunts, the Eastern EEG Society, 1969  
The Diagnostic Significance of Scalp and Depth EEG findings in Patients  
with Temporal and Frontal Lobe Epilepsy, IV International Congress of  
Neurological Surgery, 1969

### Publications

Numerous papers in professional journals regarding brain tumors and  
related subjects as indicated above.

From American Men of Science Edition 11 (eleven) p. 3037

LAWS, DR. EDWARD RAYMOND, JR, b. New York, N.Y., Apr. 29, 38; m. 62; c. 3.  
TOXICOLOGY. A.B. Princeton, 59; M.D. Hopkins, 63. U.S. Pub. Health  
Serv. res. grants, 60-62; Henry Strong Denison fel, 62-63; fel. surg,  
Hopkins & intern, hosp, 63-64; ASST. CHIEF TOXICOL, COMMUN. DISEASE  
CENTER, U.S. PUB. HEALTH SERV, 64- U.S.P.H.S, 64-, Surg. Toxicology of  
economic poisons: neurosurgery. Address: Toxicology Section, Communicable  
Disease Center, Atlanta, Ga. 30333.

Mrak, Dr. Emil M.

Who's Who in America 1970-71, p. 1629

MRAK, Emil M., univ. chancellor; b. San Francisco, Oct. 27, 1901; s. Andrew and Antoinette (Newman) M.; B.S., U. Cal., 1926, M.S., 1928, Ph.D., 1937; married Vera Dudley Greaves, Nov. 16, 1945; children--Robert Emil, Antoinette Vera. Research assistant U. Calif. at Berkeley, 1926-37, instructor, 1937-41, asst. prof., 1941-44, food technologist, 1944-45, asso. prof., 1945-47, prof. food technology and chmn. dept., 1948--, chancellor at Davis, 1959---. Dir. Universal Foods, Milw., Libby's, Chgo. Chmn. com. food research Office of Q.M. Gen., War Dept., Washington, 1944-45; past mem. study sects. NIH, environmental health com., 1962-67; adv. com. Wine Inst.; adv. bd. Sugar Research Found., Nat. Bank Agr.; adv. group Regional Med. Planning; mem. Gov.'s Adv. Com. Ocean Resources; mil. personnel supplies adv. bd., biology and indsl. tech., food protection com., space sec. bd.-com. space nutrition Nat. Acad. Scis.-NRC; cons. Bur. Disease Prevention and Environmental Control, Dept. Health, Edn. and Welfare; mem. Pres.'s Com. Med. and Scis., Pres.'s White Mountain Research Sta. Adv. Com., Pres.'s Com. Council Chief Campus Officers. Chmn. bd. dirs. Cal. State Expn. and Fair Bd.; mem. Nestle Found.; cons. NSF, IRI Research Inst., Inc.; trustee Nutrition Found. Fellow A.A.A.S., Am. Pub. Health Assn.; mem. National Acad. Sci., N.Y. Academy of Science, Society Am. Bacteriologists, Mycol. Soc. Am., Soc. Gen. Microbiology (Eng.), Am. Acad. Microbiology, San Francisco C. of C. (agricultural com.), Internat. Congress Food Sci. and Tech. (hon.), Inst. Food Technologists (past pres.), Sigma Xi, Gamma Alpha (national president in 1965), Phi Tau Sigma, Alpha Zeta, Phi Sigma, Alpha Gamma Rho. Club: Bohemian (San Francisco, California). Author U. Cal. Expt. Sta. bulls. and circulars. Editor: Advances in Food Research, Volumes I through vol. XV, 1947---. Contrb. various phases food tech. to sci. jours. Home: 16 College Park, Davis, Cal.

O'Brien, Dr. Richard D.

From Who's Who in America 1970-71, p. 1697

O'BRIEN, Richard Desmond, neurobiologist; b. Sydenham, Eng., May 29, 1929; s. Joseph Andrew and Louise (Stevens) O'B.; B.Sc., Reading (Eng.) U., 1950; Ph.D., in Chemistry, U. Western Ont. (Can.), 1954, B.A. in Aris, 1956; m. Ann Margaret Thom, Mar. 16, 1961; 1 son, Ian Richard. Came to U.S., 1960, naturalized, 1967. Soil specialist Ont. Agrl. Coll., Guelph, 1950-51; chemist Pesticide Research Inst., London, Can., 1954-60; Nat. Research Council fellow, Babraham, Cambridge, Eng., 1956-57; vis. asso. prof. U. Wis., 1958-59; mem. faculty Cornell U., 1960---, prof. entomology, 1964---, prof. neurobiology, 1965---; chmn. dept. biochemistry, 1964-65, chmn. sect. neurobiology and behavior, 1965---; cons. Melpar Inc., 1960-65, Am. Cyanamid Co., 1960---, USPHS, 1964---. Fellow A.A.A.S.; mem. Biochem. Soc. (Eng.), Am. Chem. Soc., Entomol. Soc. Am., Sigma Xi. Author: Toxic Phosphorus Esters, 1960; Radiation, Radioactivity and Insects (with L.S. Wolfe), 1964; Insecticides Action and Metabolism, 1967; also articles. Home: R.D. 3, Trumansburg, N.Y. 14886. Office: Sect. of Neurobiology and Behavior, Cornell Univ., Ithaca, N.Y. 14850



Quinby, Dr. Griffith E.

From American Men of Science Edition 11 (eleven), p. 4299

QUINBY, DR. GRIFFITH E, b. Jefferson Co, Ky, Oct. 24, 14; m. 39; c.4. TOXICOLOGY, EPIDEMIOLOGY, B.S. Louisville, 35, M.D., 42; M.P.H., Hopkins, 46, Instr. Prev. med. & pub. health, Louisville, 35-41; sci. asst. malariol, U.S. Pub. Health Serv, 39-40, asst, engr, malaria control defense areas, 41-42, med. intern, Marine Hosp, New Orleans, La, 42-43, from asst. surgeon to sr. surgeon, 43-63; DIR. COMMUNITY PESTICIDE STUDY PROJ. PESTICIDES OFF, STATE DEPT. HEALTH, WASH, 65- Consult, govt, indust. & acad. orgn. & private practice prev. med, 64-; WHO, 66- Consult. ed, Jour. Environ. Health; Adv. in Chem. Mem. courtesy staff, Washington State, 54; pub. rels. officer, Int. Cong. Trop. Diseases & Malaria, 48. Erbell award, 34; dipl, Am. Bd. Prev. Med. & Pub. Health, 49. Soc. Trop. Med. & Hyg; Am. Med. Asn.(consult. ed, jour); Col. Clin. Pharmacol. & Chemother; Indust. Med. Asn; Soc. Toxicol. Epidemiology and ecology of biological warfare; mycologic allergies; epidemiology of malaria and typhus; toxicology of newer pesticides and of western orchards and agriculture. Address: Box 1313, Wenatchee, Wash. 98801. Also published papers on residues of organochlorine and organophosphorus insecticides.





APPENDIX C

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
WASHINGTON, D.C. 20201

OFFICE OF THE SECRETARY

March 24, 1970

Dr. Harry W. Hays  
Director, Pesticide Regulation Division  
U. S. Department of Agriculture  
Washington, D. C. 20505

Dear Dr. Hays:

In regard to your proposed cancellation of all uses of DDT except for certain essential needs, the Department of Health, Education, and Welfare recommends the following as essential for health purposes:

1. DDT may be used as a residual in or on buildings when necessary to prevent transmission of malaria as adjudged by competent authority.
2. DDT may be used in aquatic situations to control black-flies when needed to prevent the transmission of onchocerciasis as adjudged by competent authority.
3. There may be other disease problems occurring from time to time in this country or other parts of the world in which DDT is needed on an emergency basis. DDT should be available in such situations when needed as adjudged by competent authority.

We recommend that these uses be considered acceptable.

Sincerely yours,

/s/

Albert C. Kolbye, Jr., M.D.  
Health, Education, and Welfare  
Representative  
Interdepartmental Agreement on  
Pesticide Registration

BRIEF FOR THE RESPONDENTS

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IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 23813

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ENVIRONMENTAL DEFENSE FUND, INCORPORATED,  
ET AL.,

Petitioners

v.

CLIFFORD M. HARDIN, SECRETARY OF AGRICULTURE,  
ET AL.,

Respondents

---

ON PETITION FOR REVIEW OF AN ORDER OF THE

United States Court of Appeals  
for the District of Columbia Circuit

FILED FEB 26 1970

*Nathan J. Waulson*  
CLERK

WILLIAM D. RUCKELSHAUS  
Assistant Attorney General  
ALAN S. ROSENTHAL  
Attorney  
Department of Justice  
Washington, D. C. 20530

CHARLES W. BUCY  
Assistant General Counsel  
RAYMOND W. POLLERTON  
Attorney  
Department of Agriculture  
Washington, D. C. 20250



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\* Cases chiefly relied upon are marked by asterisks.

IN THE UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 23813

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ENVIRONMENTAL DEFENSE FUND, INCORPORATED,  
ET AL.,

Petitioners

v.

CLIFFORD M. HARDIN, SECRETARY OF AGRICULTURE,  
ET AL.,

Respondents

---

ON PETITION FOR REVIEW OF AN ORDER OF THE  
SECRETARY OF AGRICULTURE

---

BRIEF FOR THE RESPONDENTS

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COUNTER-STATEMENT OF THE ISSUE

Whether a letter sent by an administrative official of the Department of Agriculture to petitioners' counsel, advising of the status of measures instituted by the Department, and the steps under administrative consideration, to protect the public health and welfare and the environment, constitutes a final order, with findings founded



on an administrative record compiled in an adjudicative proceeding, reviewable under Section 4 of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 135b).

#### COUNTER-STATEMENT OF THE CASE

##### 1. Statutory Background

The Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 135 et seq.), establishes comprehensive procedures with respect to the registration of economic poisons<sup>1/</sup> by the Secretary of Agriculture, and with respect to the denial, suspension and cancellation of such registrations. The statute makes it unlawful for "any person to distribute, sell, or offer for sale in any Territory, or in the District of Columbia" or to ship or receive in interstate or foreign commerce, any economic poison that is (1) not registered with the Secretary of Agriculture, (2) not in the registrant's original container and bearing the required label, (3) highly toxic to man and does not have the skull and

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\* This case was before the Court on petitioners' motion for expedited procedure and respondents' motion to dismiss. In a per curiam order filed January 29, 1970, Chief Judge Bazelon and Judge Robinson granted the motion for expedited procedure and ordered that "respondents' motion to dismiss the petition for lack of jurisdiction be deferred for consideration with the merits of the case."

<sup>1/</sup> For the purposes of the Act, the "term 'economic poison' means (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms of plant or animal life or viruses, except viruses on or in living man or other animals, which the Secretary shall declare to be a pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant or desiccant."  
7 U.S.C. 135(a).

crossbones, the word "poison" displayed prominently in red letters, and a statement of the antidote for the economic poison, (4) white powder that has not been distinctly colored or discolored as required by the Act, or (5) adulterated or misbranded. 7 U.S.C. 135a. Criminal penalties are established for violations of the Act (7 U.S.C. 135f), and economic poisons which are being moved in interstate commerce and do not comply with the provisions of the Act are subject to seizure (7 U.S.C. 135g).

Detailed administrative procedures are established with respect to the denial, suspension or cancellation of the registration of an economic poison. 7 U.S.C. 135b. "Whenever the Secretary refuses registration of an economic poison or determines that registration of an economic poison should be canceled, he shall notify the applicant for registration or the registrant of his action and the reasons therefor." 7 U.S.C. 135b(c). At the request of the applicant or registrant, the matter must then be referred to an advisory committee selected by the National Academy of Sciences. Ibid. Within 90 days after receipt of the report and recommendations of the advisory committee, the Secretary must "make his determination and issue an order, with findings of fact, with respect to the registration of the articles and notify the applicant for registration or registrant." Ibid. The applicant or registrant then has 60 days in which to file objections thereto and to request a public hearing. Ibid. Within 90 days after the completion of the hearing "the Secretary shall evaluate the data and reports before him, act upon such objections and issue an

order granting, denying, or canceling the registration or required modification of the claims or the labeling." Ibid. "Such order shall be based only on substantial evidence of record at such hearing, including any report, recommendations, underlying data, and reason certified to the Secretary by an advisory committee, and shall set forth detailed findings of fact upon which the order is based." Ibid.

Section 4c of the Act also provides that "the Secretary may, when he finds that such action is necessary to prevent an imminent hazard to the public, by order, suspend the registration of an economic poison immediately." When the registration of an economic poison is suspended, the registrant is given the opportunity to have the matter submitted to an advisory committee and to have an expedited hearing. 7 U.S.C. 135b(c).

Final orders of the Secretary under Section 4c "shall be subject to judicial review, in accordance with the provisions of subsection d" of Section 4. 7 U.S.C. 135b(c). That subsection (7 U.S.C. 135b(d)) in turn provides that in "a case of actual controversy as to the validity of any order under this section, any person who will be adversely affected by such order may obtain judicial review by filing in the United States court of appeals for the circuit wherein such person resides or has his principal place of business, or in the United States Court of Appeals for the District of Columbia Circuit, within sixty days after the entry of such order, a petition praying that the order be set aside in whole or in part" (emphasis supplied). The review is to be based on the administrative

record and the findings of the Secretary with respect to questions of fact "shall be sustained if supported by substantial evidence when considered on the record as a whole \* \* \*." Ibid.

## 2. The Facts of This Case

On October 31, 1969, four of the petitioners<sup>2/</sup> - viz., Environmental Defense Fund, Incorporated, Sierra Club, West Michigan Environmental Action Council and National Audubon Society - transmitted a written document to the Secretary of Agriculture. In such document the petitioners requested the Secretary to "immediately, (1) suspend the registration of all economic poisons that contain DDT; and (2) issue Notices of Cancellation for all registered economic poisons that contain DDT, affording petitioners an opportunity to participate fully in any administrative proceedings held following the issuance of notices of cancellation including the right to adduce evidence, to rebut and to cross-examine" (Attachment A to the Petition, p. 20).

For some time prior to receipt of petitioners' requests, officials of the Department of Agriculture have been studying ways to allay the possible hazards from the presence of DDT in the environment. On November 20, 1969, wholly independent of petitioners' requests, the Secretary, pursuant to the authority vested in him by the provisions of Section 4c of the Federal Insecticide, Fungicide, and Rodenticide Act

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<sup>2/</sup> On February 10, 1970, Izaak Walton League of America was granted leave to become an intervening petitioner in the case.

(7 U.S.C. 135b(c)), issued notices of cancellation of the registrations of products containing DDT for "(1) all uses on shade trees, including elm trees for control of the elm bark beetle which transmits the Dutch elm disease; (2) all uses on tobacco; (3) all uses in or around the home except limited uses for control of disease vectors or as determined by public health officials; [and] (4) all uses in aquatic environments, marshes, wetlands, and adjacent areas, except those which are essential for the control of disease vectors as determined by public health officials." 34 F.R. 18827. Six registrants - firms that manufacture, process, or market products that contain DDT - invoked their statutory right under Section 4c to challenge the cancellations by requesting either (1) referral of the matter to an advisory committee, or (2) a public hearing.

In addition to the foregoing, the Secretary also announced that he was considering cancelling the registrations of products containing DDT for all other uses<sup>3/</sup> "unless it can be shown that certain uses are essential in the protection of human health and welfare and only those uses for which there are no effective and safe substitutes for the intended use will be continued." The Secretary's announcement was published in

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<sup>3/</sup> The principal other uses of products containing DDT involve food productivity. Whenever such products are permitted to be used in connection with food crops, tolerances have been established pursuant to the provisions of 21 U.S.C. 346a to assure that the pesticide residue that may remain on raw agricultural commodities is not unsafe.

the November 25, 1969, issue of the Federal Register, and all interested persons were afforded 90 days in which to submit written data, views, or arguments with respect to the matter. 34 F.R. 18827.<sup>4/</sup>

On December 11, 1969, Dr. Ned D. Bayley, Director of Science and Education, United States Department of Agriculture, sent the following letter to the petitioners' counsel:

December 11, 1969

Mr. James W. Moorman  
Center for Law and Social Policy  
1752 Swann Street, N.W.  
Washington, D.C. 20009

Dear Mr. Moorman:

This is in further reply to your letter of October 31, 1969, submitting a petition requesting the suspension and cancellation of registration of economic poisons containing DDT, filed on behalf of Environmental Defense Fund, Inc., Sierra Club, West Michigan Environmental Action Council and the National Audubon Society. This will also reply to your letter of November 7, 1969.

We have been concerned for some time over the potential hazards that may result from the presence of DDT and other persistent pesticides in the environment. It was because of our concern for the environment that the Department requested the National Academy of Sciences - National Research Council to study and provide a factual report on the effects of persistent pesticides on man, agriculture, and the environment. Their report has been completed, and, in general, it pointed to adequate protection

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<sup>4/</sup> The 90-day period expires on February 23, 1970. The Secretary has already received numerous recommendations in response to his invitation. It is significant that all of the petitioners have availed themselves of the Secretary's invitation, and the recommendations of the petitioners will be considered along with all other comments.



to man's food and health under the present systems of controls, but recommended expanded research leading to the development of new pesticidal chemicals and techniques for using them, and the strengthening of the regulation and monitoring of persistent pesticides to provide long-range protection for wildlife and the overall environment.

In April 1969, Secretary Finch of the Department of Health, Education, and Welfare appointed a Commission to study pesticides and their relationship to environmental health. Recently Secretary Finch released the Commission's conclusions and its recommendations for actions to be taken.

As a result of the above two reports and other considerations that we have been reviewing, we have taken a number of steps to assure greater protection to the environment.

On October 23, 1969, the Department of Agriculture issued a policy on pesticides. A copy is enclosed for your information.

On November 13, 1969, a directive was issued that listed special environmental considerations that must be applied to the registration of pesticides. The details were announced in the Press Release USDA 3508-69 of which a copy is enclosed for your additional information.

On November 20, 1969, our Pesticides Regulation Division began mailing a Notice to Manufacturers, Formulators, Distributors, and Registrants of Economic Poisons notifying them of the cancellation of registration of DDT products for certain uses. A copy of this PR Notice 69-17 is enclosed for your information.

In the November 25, 1969 (Vol. 34, No. 226), issue of the Federal Register was published a notice of action being taken to cancel the registration of the DDT uses in the aforementioned notice. Also, it served notice that the Department is considering cancellation of any other uses of DDT and affords interested persons an opportunity for a period of 90 days to submit their views and comments. A copy of the Federal Register publication is enclosed for your additional information.

We believe that these actions are responsive to your petition when reviewed in the light of the two studies by eminent scientists and other essential considerations.

Sincerely,

/s/ Ned D. Bayley

Ned D. Bayley  
Director of Science & Education

4 Enclosures



On December 29, 1969, Environmental Defense Fund, et al., filed a petition in this Court seeking judicial review of the letter that they received from Dr. Bayley.<sup>5/</sup> The jurisdiction of this Court was invoked under Section 4d of the Act.

On January 12, 1970, the respondents moved to ~~dismiss~~ the petition for lack of jurisdiction, the principal basis of the motion being that the Bayley letter did not constitute a final order of the Secretary, based upon an administrative record and findings, within the meaning of Section 4d. As above noted, on January 29, 1970, this Court entered an order deferring consideration of that motion. Thereafter, respondents moved for reconsideration of the January 29 order. As of February 18, the motion for reconsideration had not been acted upon.

#### STATUTE INVOLVED

The relevant provisions of Section 4 of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 135b), are as follows:

a. Every economic poison which is distributed, sold, or offered for sale in any Territory or the District of Columbia, or which is shipped or delivered for shipment from any State, Territory, or the District of Columbia to any other State, Territory, or the District of Columbia, or which is received from any foreign country shall be registered with the Secretary: Provided, That products which

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<sup>5/</sup> On January 9, 1970, after the petition for review was filed in this case, the Secretary requested the National Academy of Sciences to select an advisory committee to consider the cancellations challenged by the registrants and to make a report and recommendations as required by Section 4c of the statute (7 U.S.C. 135b(c)).

have the same formula, are manufactured by the same person, the labeling of which contains the same claims, and the labels of which bear a designation identifying the product as the same economic poison may be registered as a single economic poison; and additional names and labels shall be added by supplement statements; the applicant for registration shall file with the Secretary a statement including--

(1) the name and address of the registrant and the name and address of the person whose name will appear on the label, if other than the registrant;

(2) the name of the economic poison;

(3) a complete copy of the labeling accompanying the economic poison and a statement of all claims to be made for it, including the directions for use; and

(4) if requested by the Secretary, a full description of the tests made and the results thereof upon which the claims are based.

b. The Secretary, whenever he deems it necessary for the effective administration of this Act, may require the submission of the complete formula of the economic poison. If it appears to the Secretary that the composition of the article is such as to warrant the proposed claims for it and if the article and its labeling and other material required to be submitted comply with the requirements of section 3 of this Act, he shall register it.

c. If it does not appear to the Secretary that the article is such as to warrant the proposed claims for it or if the article and its labeling and other material required to be submitted do not comply with the provisions of this Act, he shall notify the applicant for registration of the manner in which the article, labeling, or other material required to be submitted fail to comply with the Act so as to afford the applicant for registration an opportunity to make the corrections necessary. If, upon receipt of such notice, the applicant for registration does not make the corrections, the Secretary shall refuse to register the article. The Secretary, in accordance with the procedures specified herein, may suspend or cancel the registration of an economic poison whenever

it does not appear that the article or its labeling or other material required to be submitted complies with the provisions of this Act. Whenever the Secretary refuses registration of an economic poison or determines that registration of an economic poison should be canceled, he shall notify the applicant for registration or the registrant of his action and the reasons therefor. Whenever an application for registration is refused, the applicant, within thirty days after service of notice of such refusal, may file a petition requesting that the matter be referred to an advisory committee or file objections and request a public hearing in accordance with this section. A cancellation of registration shall be effective thirty days after service of the foregoing notice unless within such time the registrant (1) makes the necessary corrections; (2) files a petition requesting that the matter be referred to an advisory committee; or (3) files objections and requests a public hearing. Each advisory committee shall be composed of experts, qualified in the subject matter and of adequately diversified professional background selected by the National Academy of Sciences and shall include one or more representatives from land-grant colleges. The size of the committee shall be determined by the Secretary. Members of an advisory committee shall receive as compensation for their services a reasonable per diem, which the Secretary shall by rules and regulations prescribe, for time actually spent in the work of the committee, and shall in addition be reimbursed for their necessary traveling and subsistence expenses while so serving away from their places of residence, all of which costs may be assessed against the petitioner, unless the committee shall recommend in favor of the petitioner or unless the matter was referred to the advisory committee by the Secretary. The members shall not be subject to any other provisions of law regarding the appointment and compensation of employees of the United States. The Secretary shall furnish the committee with adequate clerical and other assistance, and shall by rules and regulations prescribe the procedures to be followed by the committee. The Secretary shall forthwith submit to such committee the application for registration of the article and all relevant data before him. The petitioner, as well as representatives of the United States Department of Agriculture, shall have the right to consult with the advisory committee. As soon as practicable after any such submission, but not later than sixty days thereafter, unless extended by the Secretary for an additional sixty days, the committee shall, after independent study of the data submitted by the Secretary and all other pertinent information available to it, submit a report and recommendation to the Secretary as to the registration of the article, together with all underlying data and a

statement of the reasons or basis for the recommendations. After due consideration of the views of the committee and all other data before him, the Secretary shall, within ninety days after receipt of the report and recommendations of the advisory committee, make his determination and issue an order, with findings of fact, with respect to registration of the article and notify the applicant for registration or registrant. The applicant for registration, or registrant, may, within sixty days from the date of the order of the Secretary, file objections thereto and request a public hearing thereon. In the event a hearing is requested, the Secretary shall, after due notice, hold such public hearing for the purpose of receiving evidence relevant and material to the issues raised by such objections. Any report, recommendations, underlying data, and reasons certified to the Secretary by an advisory committee shall be made a part of the record of the hearing, if relevant and material, subject to the provisions of section 7(c) of the Administrative Procedure Act (5 U.S.C. 1006(c)). The National Academy of Sciences shall designate a member of the advisory committee to appear and testify at any such hearing with respect to the report and recommendations of such committee upon request of the Secretary, the petitioner, or the officer conducting the hearing: Provided, That this shall not preclude any other member of the advisory committee from appearing and testifying at such hearing. As soon as practicable after completion of the hearing, but not later than ninety days, the Secretary shall evaluate the data and reports before him, act upon such objections and issue an order granting, denying, or canceling the registration or requiring modification of the claims or the labeling. Such order shall be based only on substantial evidence of record at such hearing, including any report, recommendations, underlying data, and reason certified to the Secretary by an advisory committee, and shall set forth detailed findings of fact upon which the order is based. In connection with consideration of any registration or application for registration under this section, the Secretary may consult with any other Federal agency or with an advisory committee appointed as herein provided. Notwithstanding the provisions of section 3.c.(4), information relative to formulas of products acquired by authority of this section may be revealed, when necessary under this section, to an advisory committee, or to any Federal agency consulted, or at a public hearing, or in findings of fact issued by the Secretary. All data submitted to an advisory committee in support of a petition under this section shall be considered confidential by such advisory committee: Provided, That this provision shall not be construed as prohibiting the use of such data by the committee in connection with its consultation with the petitioner or representatives of the United States Department of Agriculture, as provided for herein, and in connection with

its report and recommendations to the Secretary. Notwithstanding any other provision of this section, the Secretary may, when he finds that such action is necessary to prevent an imminent hazard to the public, by order, suspend the registration of an economic poison immediately. In such case, he shall give the registrant prompt notice of such action and afford the registrant the opportunity to have the matter submitted to an advisory committee and for an expedited hearing under this section. Final orders of the Secretary under this section shall be subject to judicial review, in accordance with the provisions of subsection d. In no event shall registration of an article be construed as a defense for the commission of any offense prohibited under section 3 of this Act.

d. In a case of actual controversy as to the validity of any order under this section, any person who will be adversely affected by such order may obtain judicial review by filing in the United States court of appeals for the circuit wherein such person resides or has his principal place of business, or in the United States Court of Appeals for the District of Columbia Circuit, within sixty days after the entry of such order, a petition praying that the order be set aside in whole or in part. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary, or any officer designated by him for that purpose, and thereupon the Secretary shall file in the court the record of the proceedings on which he based his order, as provided in section 2112 of title 28, United States Code. Upon the filing of such petition the court shall have exclusive jurisdiction to affirm or set aside the order complained of in whole or in part. The findings of the Secretary with respect to questions of fact shall be sustained if supported by substantial evidence when considered on the record as a whole, including any report and recommendation of an advisory committee. If application is made to the court for leave to adduce additional evidence, the court may order such additional evidence to be taken before the Secretary, and to be adduced upon the hearing in such manner and upon such terms and conditions as to the court may seem proper, if such evidence is material and there were reasonable grounds for failure to adduce such evidence in the proceedings below. The Secretary may modify his findings as to the facts and order by reason of the additional evidence so taken, and shall file with the court such modified findings and order.



The judgment of the court affirming or setting aside, in whole or in part, any order under this section shall be final, subject to review by the Supreme Court of the United States upon certiorari or certification as provided in section 1254 of title 18 [sic] of the United States Code. The commencement of proceedings under this section shall not, unless specifically ordered by the court to the contrary, operate as a stay of an order. The court shall advance on the docket and expedite the disposition of all causes filed therein pursuant to this section.

\* \* \* \*

f. The Secretary is authorized to cancel the registration of any economic poison at the end of a period of five years following the registration of such economic poison or at the end of any five-year period thereafter, unless the registrant, prior to the expiration of each such five-year period, requests in accordance with regulations issued by the Secretary that such registration be continued in effect.

#### ARGUMENT

THIS COURT LACKS JURISDICTION TO ENTERTAIN THE  
PETITION FOR REVIEW. 6/

#### I

THE SECRETARY OF AGRICULTURE HAS NOT ISSUED ANY  
ORDER ON WHICH THIS COURT CAN BASE JURISDICTION  
FOR DIRECT REVIEW UNDER SECTION 4 OF THE FEDERAL  
INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT.

By this action, petitioners seek judicial review of a letter written to them by an administrative official advising of the measures that have

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6/ For the reasons stated in our motion to reconsider this Court's January 29, 1970 order (see p. 9, *supra*), this brief is addressed solely to the question of the Court's jurisdiction over the petition for review.

been taken by the United States Department of Agriculture, and some steps under consideration, to protect the environment against adverse effects from economic poisons that contain DDT. The petitioners purport to invoke the jurisdiction of this Court under the judicial review provisions in Section 4d of the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 135b(d)). It is perfectly clear, however, that (to this point at least) the Secretary of Agriculture has not issued any order that is subject to direct judicial review in this Court under the provisions of the Act. Accordingly, the petition for review must be dismissed for lack of jurisdiction to entertain it.

A. Only Final Orders of the Secretary Are Subject to Direct Review in this Court Under Section 4d of the Act.

Section 4 of the Act (7 U.S.C. 135b) is concerned generally with the registration of economic poisons and the denial, suspension and cancellation of such registrations. In the latter connection, as detailed in the Statement, supra, comprehensive administrative proceedings are provided in subsection c of Section 4 with respect to the denial, suspension or cancellation of the registration of any economic poison.

7 U.S.C. 135b(c). "Final orders of the Secretary under this section [viz., Section 4] shall be subject to judicial review, in accordance with the provisions of subsection d of this section" (emphasis supplied). Ibid. Subsection d of Section 4 specifically provides for judicial review in the courts of appeals of an order of the Secretary, entered following



the completion of the administrative procedures carefully prescribed in the statute, at the behest of persons "adversely affected" by the order. 7 U.S.C. 135b(d). The final order of the Secretary "shall be based only on substantial evidence of record at such [administrative] hearing, including any report, recommendations, underlying data, and reason certified to the Secretary by an advisory committee, and shall set forth detailed findings of fact upon which the order is based." 7 U.S.C. 135b(c) (emphasis supplied). Judicial review of the order is to be based on the administrative record, and the findings of the Secretary with respect to questions of fact "shall be sustained if supported by substantial evidence when considered on the record as a whole \* \* \*." Ibid. (emphasis supplied).

In short, Congress expressly directed itself to the subject of judicial review with respect to administrative action under the statute, and carefully prescribed the metes and bounds of direct review by courts of appeals of such action. The plain language of Section 4 of the Act (7 U.S.C. 135b) makes direct judicial review in this Court available only when the Secretary has issued a final order (accompanied by administrative findings of fact) based on a consideration of the report and recommendations of an advisory committee and the relevant data and reports adduced at an administrative hearing; thus, such review is clearly not available with respect to any other type of administrative action.

While there is no necessity to go beyond the terms of Section 4, the fact that Congress intended to provide for direct review in a court of appeals only after the Secretary has issued a final order with findings of fact based on an administrative record compiled in an adjudicative proceeding is further reflected in the legislative history of the amendatory measure that made such review available. The "bill [i.e., S. 1605] makes various appeal procedures available where registration is refused or canceled. These include reference to an advisory committee for study and report, further determination by the Secretary, public hearings, a final order by the Secretary, and judicial review of such order" (emphasis supplied). S. Rep. No. 573 (on S. 1605), 88th Cong., 1st Sess., p. 1 (1963).

B. No Final Order of the Secretary Is Involved in This Case.

The petitioners' claim that the letter of December 11, 1969, from Dr. Bayley is a final order within the meaning of Section 4d of the Act is, we submit, frivolous. It is manifest that the letter can not, by any standard, be deemed a final order under the Act (see pp. 7-8, supra). To the contrary, as appears from even a casual reading, the letter does no more than to advise petitioners as to what the Department of Agriculture has done, and is considering doing, with relation to the matter of pesticides and environmental protection. It does not

purport to be a final disposition of the question of the registration of economic poisons containing DDT;<sup>7/</sup> is not based upon any findings of fact founded on an administrative record;<sup>8/</sup> and contains no conclusions which could lead to direct or indirect sanctions or the imposition of any standard of conduct. The letter does not impose any obligation, deny any right, or fix any legal relationship as a consummation of the administrative process; therefore, it does not constitute a reviewable administrative order. Isbrandtsen Co. v. United States, 93 U.S. App. D.C. 293, 211 F. 2d 51. See also, C & S Air Lines v. Waterman Steamship Corp., 333 U.S. 103, 113.

The letter from Dr. Bayley " \* \* [has] no present impact upon petitioners." Mustain v. United States, 314 F. 2d 113, 114 (C.A. 10). It is not a final order. Ibid. As we have shown, supra, pp. 15-17, only final orders of the Secretary are subject to judicial review under

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7/ As we have shown, supra, pp. 5-6, the administrative proceedings which are contemplated by the statute and may result in the issuance of final orders have just been instituted.

8/ In this connection, on February 12, 1970, the Acting Secretary of Agriculture transmitted to the Clerk of the Court copies of the documents selected exclusively by the petitioners in connection with the case and expressly disclaimed that the documents constitute a record as contemplated by Rule 17 of the Federal Rules of Appellate Procedure. The Acting Secretary noted that no "adjudicative administrative proceeding has been concluded pursuant to the Act" in connection with the case at bar; petitioners "are not parties to any adjudicative proceeding which has been instituted;" and no "record has been compiled in any such proceeding with respect to any matter raised in the Petition for Review filed with the Court in this case."

the provisions of the Federal Insecticide, Fungicide, and Rodenticide Act.<sup>9/</sup> It follows, a fortiori, the Court must dismiss the petition for review because it lacks jurisdiction to entertain it.

C. Petitioners' Contentions That the Secretary Has Failed to Fulfill the Mandate of the Statute Are Cognizable in the First Instance, If At All, Only in the District Court.

We find nothing in petitioners' brief which militates against the conclusion that Section 4d jurisdiction is manifestly lacking here. If anything, that brief affirmatively buttresses the conclusion, for it dispels any possible doubt that the gravamen of petitioners' complaint is that the Secretary has failed to take the affirmative action which they requested and which they insist is mandated by the Act. Specifically, according to petitioners (Br. pp. <sup>10-26</sup>~~10-26~~), the Secretary was required (1) to entertain their administrative petition; (2) to commence forthwith Section 4c proceedings with respect to all economic poisons containing DDT; and (3) to invoke the provision in Section 4c to the effect that

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<sup>9/</sup> Just as we are confined, on petitions for review, to what is contained in an administrative record (7 U.S.C. 135b(c) and 135b(d)), too, under settled principles, we may not justify administrative action on the basis of anything other than the reasons assigned by the agency for that action. "[A] reviewing court, in dealing with a determination or judgment which an administrative agency is authorized to make, must judge the propriety of such action solely by the grounds invoked by the agency." Securities Comm'n v. Chenery Corp., 332 U.S. 194, 196. See also, Securities Comm'n v. Chenery Corp., 318 U.S. 80, 94-95; Burlington Truck Lines v. United States, 371 U.S. 156, 168-169. In the context of the prescriptions of the Federal Insecticide, Fungicide, and Rodenticide Act, the reasons invoked by the Secretary must take the form of findings founded on an administrative record. 7 U.S.C. 135b.

"the Secretary may, when he finds that such action is necessary to prevent an imminent hazard to the public, by order, suspend the registration of an economic poison immediately."

In these circumstances, and leaving aside any question of their standing, it should be obvious that petitioners are proceeding in the wrong forum. In essence, what they are seeking is nothing more nor less than a judicial order, in the nature of mandamus, which would compel the Secretary to take certain action under the Act which, in petitioners' view, the Secretary is required to take but has not taken. Stated otherwise, petitioners ask this Court not to review an affirmative order (final or otherwise) which the Secretary has entered but, rather, to direct the Secretary to broaden the scope of the Section 4c proceedings which he sua sponte instituted and to issue an interlocutory suspension order in connection therewith. This kind of relief, of course, is available in the first instance (if at all) only in the district court; the sole tribunal which has plenary jurisdiction (1) to consider complaints that, by its inaction, an administrative agency is failing to carry out an alleged statutory mandate; and (2) to grant declaratory judgments and mandatory injunctions where found appropriate.<sup>10/</sup>

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<sup>10/</sup> We do not wish to be understood, of course, as implying that petitioners would be entitled to a mandatory injunction against the Secretary were an action brought in the district court. This Court need not, however, consider that question.

It is significant that petitioners do not even attempt to deal with these considerations. Instead, their brief erects straw men. Thus, for example, petitioners discuss (Br. p. <sup>36</sup>) the question as to whether review by this Court at this time would interfere with the pending Section 4c proceedings concerning DDT and endeavor to show that it would not. But that question was not raised by respondents in their motion to dismiss the petition for review and clearly has nothing to do with the issues which were raised by that motion. Similarly, despite the fact that petitioners devote a separate point to it (Br. p. <sup>37</sup>), we have never suggested that labels or form are controlling considerations in the determination of whether a particular document constitutes a final order for the purposes of the Act. What we do contend is that Dr. Bayley's letter is not a reviewable order within the meaning of Section 4 because, as appears on its face, (1) it is not based upon a Section 4c administrative record; (2) it is not accompanied by administrative findings; and (3) it does not decide (let alone direct) anything. To this, petitioners neither have <sup>11/</sup> made nor can make an effective response.

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<sup>11/</sup> In this connection, it is interesting to note that, in asserting that the Secretary can enter a final order reviewable under Section 4d prior to the consummation of a Section 4c proceeding, petitioners have avoided any reference to the terms of Section 4 itself. Instead, they confine themselves to the citation of decisions involving other agencies and other review provisions (Br. pp. 33-34). While we think this approach is scarcely helpful to this Court, it is quite understandable. For as we have seen, Section 4 leaves no doubt that the final order of the Secretary reviewable under Section 4d is that order which is entered by him upon the completion of Section 4c adjudicatory proceedings - based upon the administrative record and findings.



We would add only that if we had addressed ourselves to the matter of the form that final orders under Section 4 must take, we would have pointed to a much more fundamental consideration than that Dr. Bayley's communication was in letter form. Petitioners assume that Dr. Bayley is authorized to issue Section 4c orders on behalf of the Secretary. The fact is, however, that the only official to whom the Secretary has delegated his authority to issue adjudicatory orders is the Judicial Officer. Insofar as this Act is concerned, that delegation appears at 32 F.R. 7468. We have not mentioned this consideration previously, and need not unduly stress it now, because, once again, the letter would not have been an order even if it had been signed by the Judicial Officer or the Secretary himself. But it does provide another reason why this Court should promptly rebuff petitioners' attempt to convert a letter from an administrative official not involved in the adjudicatory process - which was designed simply to convey information - into a formal, final, adjudicatory order subject to direct review in a court of appeals.

#### CONCLUSION

For the foregoing reasons, as well as those assigned in the motion to dismiss the petition for review and the motion to reconsider



this Court's January 29, 1970 order, we respectfully submit that the <sup>12/</sup>  
petition for review should be dismissed for lack of jurisdiction.

Respectfully submitted,

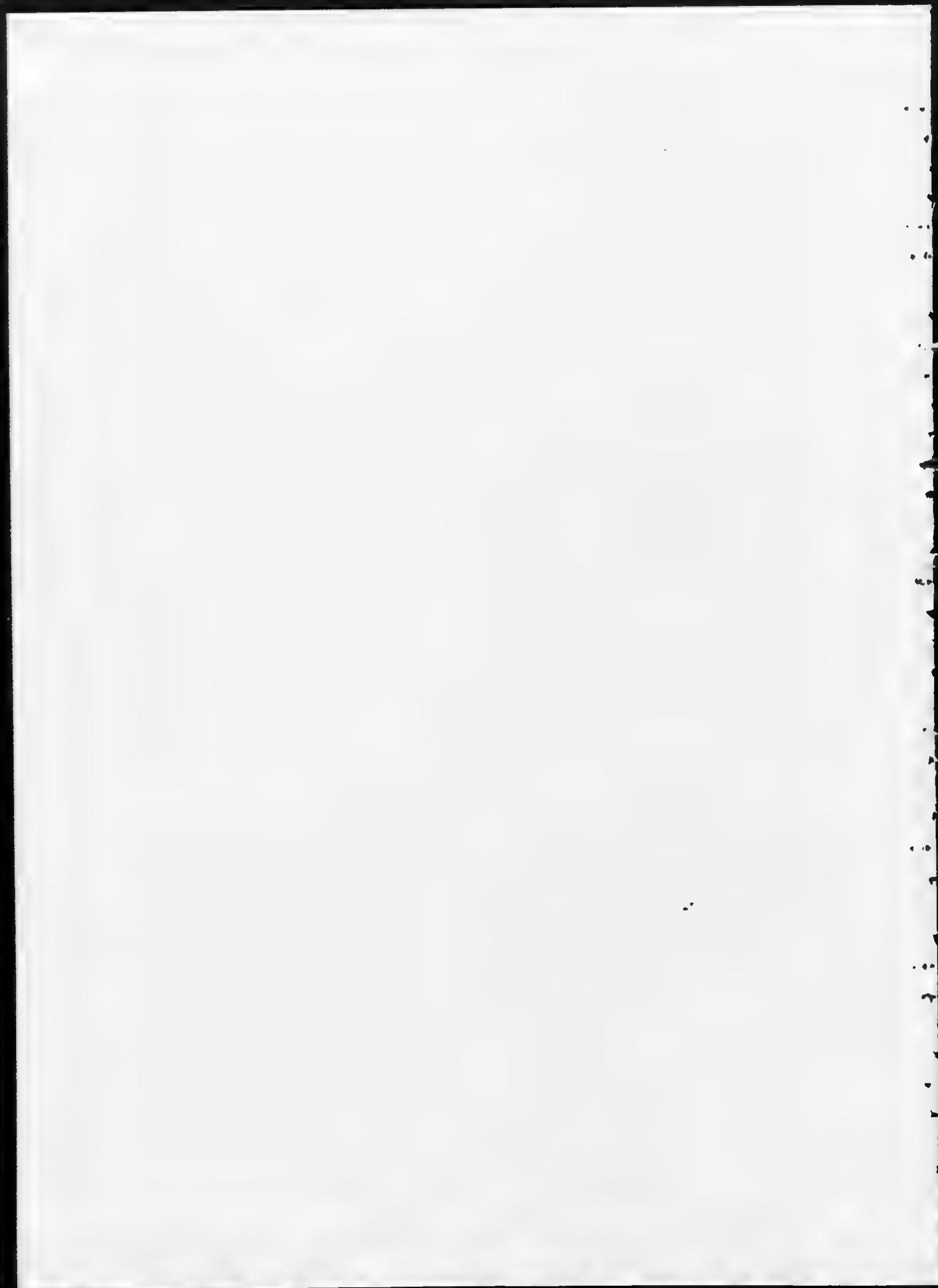
WILLIAM D. RUCKELSHAUS  
Assistant Attorney General  
ALAN S. ROSENTHAL  
Attorney  
Department of Justice  
Washington, D. C. 20530

CHARLES W. BUCY  
Assistant General Counsel  
RAYMOND W. FULLERTON  
Attorney  
Department of Agriculture  
Washington, D. C. 20250

FEBRUARY 1970

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<sup>12/</sup> Since we believe the absence of a reviewable order to be both clear and dispositive, we have not, in this brief, burdened the Court with our independent, additional contention that the Court lacks jurisdiction to entertain the petition for review because the petitioners are neither applicants for registration nor registrants under the Act. Our position in this regard is succinctly described in the motion to dismiss which we filed with the Court on January 12, 1970.



dated  
Order of  
ex. 9, 1970

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IN THE  
**United States Court of Appeals**

FOR THE DISTRICT OF COLUMBIA CIRCUIT

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**No. 23,813**

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ENVIRONMENTAL DEFENSE FUND, INCORPORATED, SIERRA CLUB,  
WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL, and  
NATIONAL AUDUBON SOCIETY, *Petitioners*,

IZAAR WALTON LEAGUE OF AMERICA, and THE STATE OF  
NEW YORK, *Intervenors*,

v.

CLIFFORD M. HARDIN, Secretary of Agriculture, and UNITED  
STATES DEPARTMENT OF AGRICULTURE, *Respondents*,

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA, *Intervenor*.

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Petition for Review of Order of the United States  
Department of Agriculture

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APPENDIX OF INTERVENOR  
MONTROSE CHEMICAL CORPORATION OF  
CALIFORNIA

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August 31, 1970

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INTERDEPARTMENTAL AGREEMENT FOR  
PROTECTION OF THE PUBLIC HEALTH AND THE QUALITY OF THE  
ENVIRONMENT IN RELATION TO PESTICIDES

BY

THE DEPARTMENT OF AGRICULTURE (USDA)  
THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE (DHEW)  
THE DEPARTMENT OF INTERIOR (USDI)

PURPOSE

Coordination of the activities of the three Departments pertaining to economic poisons as defined in section 2 of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C.135), hereinafter referred to as pesticides, with reference to the review of current or proposed registrations to assure maximum protection of the public health, the well being of man, and the quality of the environment.

EXISTING DEPARTMENTAL RESPONSIBILITIES

Each of the three Departments has certain statutory authority and responsibility relating to pesticides in the environment, as set forth below:

DEPARTMENT OF AGRICULTURE

1. Statutory authority under the Federal Insecticide, Fungicide, and Rodenticide Act for registration of pesticides.
2. Responsibility for research, education, information, regulatory, and action programs designed to protect the well being of man, crops, livestock, forests, ranges, habitats, products, structures, and premises against arthropod and other invertebrate pests, weeds, and fungi with equal concern for the protection of beneficial non-target organisms and the quality of the environment.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

DHEW has the statutory authority and responsibility under the Federal Food, Drug, and Cosmetic Act for establishing safe tolerances for pesticides in or on raw agricultural commodities, processed food and potable water. The Department also has responsibilities for protecting the public from health, occupational and environmental hazards related to the use and disposal of pesticides, and for other public health aspects such as the control of diseases and their vectors.



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INTERDEPARTMENTAL AGREEMENT FOR  
PROTECTION OF THE PUBLIC HEALTH AND THE QUALITY OF THE  
ENVIRONMENT IN RELATION TO PESTICIDES

BY

THE DEPARTMENT OF AGRICULTURE (USDA)  
THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE (DHEW)  
THE DEPARTMENT OF INTERIOR (USDI)

PURPOSE

Coordination of the activities of the three Departments pertaining to economic poisons as defined in section 2 of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C.135), hereinafter referred to as pesticides, with reference to the review of current or proposed registrations to assure maximum protection of the public health, the well being of man, and the quality of the environment.

EXISTING DEPARTMENTAL RESPONSIBILITIES

Each of the three Departments has certain statutory authority and responsibility relating to pesticides in the environment, as set forth below:

DEPARTMENT OF AGRICULTURE

1. Statutory authority under the Federal Insecticide, Fungicide, and Rodenticide Act for registration of pesticides.
2. Responsibility for research, education, information, regulatory, and action programs designed to protect the well being of man, crops, livestock, forests, ranges, habitats, products, structures, and premises against arthropod and other invertebrate pests, weeds, and fungi with equal concern for the protection of beneficial non-target organisms and the quality of the environment.

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

DHEW has the statutory authority and responsibility under the Federal Food, Drug, and Cosmetic Act for establishing safe tolerances for pesticides in or on raw agricultural commodities, processed food and potable water. The Department also has responsibilities for protecting the public from health, occupational and environmental hazards related to the use and disposal of pesticides, and for other public health aspects such as the control of diseases and their vectors.

## DEPARTMENT OF INTERIOR

USDI has statutory authority and responsibility under the Federal Water Pollution Control Act to carry out programs to protect and enhance the quality of the Nation's waters including determining the effects of pesticides in water on health, welfare, and aquatic life. These responsibilities include establishing water quality standards for interstate waters. The Department also has statutory authority for the conservation of wild birds, fish, mammals, their food organisms and their environment as affected by pesticides and the appraisal of effects of pesticides on fish and wildlife.

### INFORMATION

Each Department will keep each of the other Departments fully informed of developments in knowledge from research or other sources which may come into its possession in connection with matters referred to in this Agreement. High priority shall be placed by each Department representative to respond to each of the other Departments' requests, whether written or oral, for any and all information concerning action pending or taken on pesticide matters.

### PROCEDURES

#### A. GENERAL

1. Each Department will designate a qualified representative to act on behalf of such Department in carrying out the terms of this agreement. All communications from USDA, DHEW, and USDI will be directed to these representatives.
2. USDA shall furnish to the other Departments copies of each proposal received for registration or re-registration with the accompanying safety data (if any) and a request for an opinion from DHEW and USDI on the requested action in their areas of responsibility.
3. Within 15 working days DHEW and USDI shall evaluate each registration or re-registration proposal in light of the data supplied and offer an opinion or provide a status report as to whether or not the registration should be granted or specify the additional data deemed necessary before such evaluation can be made. When either is unable to assess the public health or environmental risk without additional data, USDA shall advise the registrant of its inability to consider registration of the pesticide until the additional data requested have been received and reviewed by the respective Departments according to the following procedures described below.

B. SPECIFIC

1. The Departmental Representative will accomplish review by his agency of each proposal and report results of such review to each of the other agencies within 15 working days of the receipt of the proposal. If there is insufficient information to reach a decision on the proposal, USDA will be contacted within such period of 15 working days and advised with particularity what additional information is needed for the necessary evaluation. Applicants for registration should not be discouraged from communicating with DHEW or USDI on registration matters of mutual interest, so long as the other representatives are informed of the details of such contact by memorandum thereof.
2. Upon receipt of such a request for further information, USDA will make arrangements to obtain the additional information, if available and furnish it to the Department making the request. USDA will withhold final action on the matter for 15 working days, from the date of furnishing the requested information or advise that such information is not available, pending receipt of the report of the other Department of the results of further review.
3. If a Department concludes that the registration should be rejected in whole or in part, this view shall be expressed in writing along with a statement of the reasons for the conclusion including the specific information, lack of information, or scientific judgment upon which these are based.  
  
Upon being so notified, USDA will notify the party involved, i.e. the applicant or registrant, and offer him an opportunity to submit any data, views, or arguments with respect to the proposed rejection and any such submission shall be promptly referred to the other Department representatives who shall report to USDA the results of their review of the submission.
4. In the event that after the review of the additional data the Departments cannot agree on the approval of the proposal, any Department may request the formation of a Registration Review Panel for the purpose of making a complete review of the issues and related information or lack thereof and submit

a detailed report of their findings. Each Registration Review Panel shall be composed of two representatives from each of the three Departments with the chairman to be selected from the representatives of the Department from which the objections have come.

The Registration Review Panel shall prepare its report within 20 working days, including any minority opinions, and submit it to each of the three Departments.

5. The report (s) of the Registration Review Panel shall be reviewed by each Department within 15 working days of its receipt.
6. If significant differences between the Departments remain still unresolved, all data and information submitted by all parties shall be reviewed at the first monthly Interdepartment Pesticide Meeting after the reviews of the Registration Review Panel reports have been made.
7. In the event agreement is not reached among the Department representatives at the monthly Interdepartment Pesticide Meeting, a submission of the reports of the reviews referred to in paragraphs B-1 through B-6 above, will be referred at the request of the Secretary of the objecting Department to the Cabinet Committee on Environmental Quality. The referral shall be accompanied by a statement prepared by each Department analyzing the issues involved and setting forth the decision it recommends. The Cabinet Committee on Environmental Quality will consider such recommendations and make a written report, either accepting, rejecting, or modifying them.
8. Based upon consideration of the action of the Cabinet Committee, the Secretary of Agriculture will make the decision as to the specific action to be taken with respect to the matter on which the Department representatives were not in agreement, and will thereupon notify the other two Secretaries in writing in advance of the publication of the final determination if he has not followed the recommendations made by the objecting Department (s), specifically stating his reasons for such action.
9. When registration is granted, USDA shall supply to DHEW and USDI final printed labeling at the time of registration with a copy of the final letter to the registrant.



10. The Departmental representatives may review existing patterns of usage and registrations for particular pesticides. A conclusion by USDA, DHEW, or USDI that an existing pesticide use or registration may be detrimental to the public health or to the quality of the environment shall be transmitted to the other two Departments together with the supporting reasoning and information, with a recommendation for corrective action. Written information from all sources on the health or environmental aspects of such pesticides shall be submitted to a Registration Review Panel for review and recommendations. If USDA, DHEW, or USDI disagrees with the recommendations of the Registration Review Panel, that Department can initiate further review by the procedural steps described in paragraphs B-6 through B-8 above.

#### INTERDEPARTMENT PESTICIDE MEETINGS AND CONFERENCES

The Department representatives will meet jointly at an Interdepartment Pesticide Meeting once a month to provide a continuous dialogue concerning all aspects of their current activities and to promote cooperation and understanding among the Departments. Monthly reports concerning their activities will be made to the Secretaries of the three Departments, according to a mutually agreed upon format.

The Departmental representatives will arrange a general conference at least once each year to discuss research needs, research program and policy, and the application of research findings in action programs, including public information relating to pesticides. The Interdepartment Pesticide Meeting will consider broad questions on policies relating to pesticides involving the interrelationships of control programs, research, registration, tolerances, the public health, and general departmental recommendations to the public.

In order to promote free interchange of information among the Departments involved under this Agreement, each Department representative should be invited and encouraged to participate in conferences, meetings, and various symposiums with Federal, State, university, or industry people on possible matters of mutual interest.

EFFECTIVE DATE AND SUPERSEDURE

This Agreement shall become effective upon signature by the Secretaries of USDA, USDI, and DHEW, and shall supersede the Agreement entitled "Interdepartmental Coordination of Activities Relating to Pesticides by the Department of Agriculture, the Department of Health, Education, and Welfare, and the Department of the Interior," published in the Federal Register on May 1, 1964 (29 F.R. 5808).

Date: January 28, 1970

/s/ Clifford M. Hardin  
Secretary of Agriculture

Date: January 28, 1970

/s/ Robert H. Finch  
Secretary of Health, Education,  
and Welfare

Date: January 28, 1970

/s/ Walter J. Michel  
Secretary of the Interior



CHARTER OF THE WORKING GROUP OF  
THE COMMITTEE ON PESTICIDES  
OF THE ENVIRONMENTAL QUALITY COUNCIL

A. ESTABLISHMENT

A Working Group of the Committee on Pesticides of the Environmental Quality Council is established pursuant to action of the Council announced on November 20, and the Federal Committee on Pest Control is hereby abolished.

The Working Group will: (1) provide day-to-day coordination of Federal agency pesticide activities; and (2) develop program and policy proposals for consideration by the Committee on Pesticides.

The following agencies will have membership on the Working Group:

Department of Agriculture  
Department of Health, Education, and Welfare  
Department of the Interior  
Department of Defense  
Department of Transportation  
Department of State\*

The Office of Science and Technology, the Bureau of the Budget, and the Office of Intergovernmental Relations will be invited to designate an observer at the meetings of the Working Group. Other agencies will be invited to participate in meetings when matters of significant concern to them are to be discussed.

The Working Group will consist of one principal authorized to

\*The intent is to assure adequate consideration of international concerns which are largely but not wholly represented within the Agency for International Development.

commit his agency in routine coordination and on most issues and to make reservations on behalf of his agency on controversial issues.

At the request of any principal, Departmental or agency issues will be referred to the Pesticides Committee for review prior to implementation.

Each member agency will name one or more alternates to speak for that agency in the absence of the principal. Other individuals, cognizant of the pesticide programs and responsibilities of their agencies, may attend meetings to provide technical support for the principal.

It is recognized that the use of pesticide chemicals is necessary to protect man, animals, plants, and the environment against harmful insects, rodents, other vertebrate pests, weeds, and diseases. It is further recognized that use of pesticide chemicals, especially careless and unauthorized use, is hazardous to nontarget man, plants, and animals, and the environment. It is, therefore, essential that any use of a pesticide chemical be evaluated as to the necessity for its use, the harm which may result, and the precautions which must be taken to minimize harmful effects.

#### B. PURPOSE

The Working Group is the primary staff level coordinating mechanism for Federal activities concerning pesticides, pests, and their control. The activities coordinated by the Working Group include, but are not limited to:

- (1) Pest control programs in various parts of the world in which there is active participation on the part of the Federal Government, either in funding or in supervision;
- (2) Research on pests and their control and effects of control procedures, whether by chemical or other methods;
- (3) Monitoring of the environment for pesticides and their residues;
- (4) Establishment of pesticide investigation teams to conduct special investigations of pesticide problems which arise or which may be anticipated;
- (5) Public information on pest control and the use of pesticides;
- (6) Evaluation of economic and social values and risks involved in the control of pests by various methods; and
- (7) Advice to the Interagency Registration Group on problems that it believes should be considered by that Group.

The Working Group shall advise the Committee on Pesticides and the appropriate Federal departments and agencies concerning matters of common interest. In no case, however, will the Working Group supersede the responsibility of each department and agency to carry out the functions assigned to it by legislative and executive mandates. The Working Group will encourage exchange of information among International, Federal, state, and local agencies and may participate with them as appropriate.

#### C. PROCEDURES

##### 1. Review of programs

- a. On request, any Federal agency shall submit to the Working

Group for review a detailed description of its proposed and current pest control programs and monitoring, research, education, and other programs pertaining to pest control.

b. The Working Group will review such programs from the standpoint of effectiveness, economic impact and hazards to human health, to livestock and crops, to fish or wildlife, and to other elements of the environment.

c. Based on such review, the Working Group shall recommend to the heads of the departments or agencies concerned such modifications in the programs as the Working Group feels will best serve the public interest.

## 2. Intergovernmental Cooperation

a. The Working Group shall promote or encourage review of both Federal and non-Federal programs by state and local groups representing a broad spectrum of interests and responsibilities.

b. The Working Group may communicate with such state and local groups to receive their recommendations, and to make recommendations to them, either directly or through member departments, whichever seems most expeditious and effective.

c. Subject to foreign policy guidance from the Department of State, the Working Group may participate in joint activities with foreign or international groups having similar interests and will coordinate these activities among Federal and state agencies. Informal recommendations arising from such joint activities may be directed by the Working Group to the concerned Federal depart-

ment or agency. No formal recommendations shall be transmitted directly to any foreign government or international agency.

3. Stimulation of new activities

a. Whenever the Working Group feels that the public interest will be served by the initiation of new activity, such as inter-departmental participation in integrating a variety of control methods or in analyzing jointly the efforts of such integrated control on all aspects of the environment, the Working Group may recommend appropriate action to the Committee on Pesticides and to the concerned departments or agencies and representatives of states.

4. Mechanisms available to the Working Group

a. The Working Group may establish ad hoc groups or panels of specialists to assist in discharging the Working Group's responsibilities. Membership on such ad hoc groups need not be limited to representatives of Federal departments.

b. The Working Group may request the appropriate agencies to provide special services, consultation, staff, facilities, publications, conferences, etc., as may facilitate the work of the Working Group. Expenditure of appropriated funds for such activities of the Working Group must be within the authority and area of responsibility of the contributing department or agency and must remain within its individual fiscal control, even though the technical supervision may be provided by the Working Group.

D. MEMBERSHIP

Membership and observer status on the Working Group is by appoint-

ment of principals and alternates by letter, to the Chairman of the Committee on Pesticides, from the heads of agencies concerned. On invitation of the Working Group, liaison representative may be similarly appointed by other government agencies having an interest in problems related to pest control.

#### E. OFFICERS AND STAFF

1. The officers of the Working Group shall be:

Chairman  
Vice Chairman  
Executive Secretary

The Chairman and Vice Chairman shall be elected from among members of the Working Group.

2. The staff of the Working Group shall include such professional and other staff as may be required.

3. It shall be the duty of the Chairman to preside at all meetings and to assure compliance with the Charter of the Working Group. He shall call meetings of the Working Group when he deems it necessary or on request of any member department. The Chairman shall exercise leadership in seeking timely interagency coordination on items of concern to the Working Group. The Chairman shall communicate directly with the Chairman of the Committee on Pesticides as needed.

4. In the absence of the Chairman, the Vice Chairman will perform the functions of the Chairman.

5. The Executive Secretary will be responsible for:

- a. Preparation of agenda, notice of meetings, correspondence, coordination of administrative matters and repre-



sentation of the Working Group as requested by the Chairman."

b. Preparation and recommendation to the Working Group of pertinent policies and plans to meet the Working Group requirements. To this end, the Executive Secretary may request the Chairman to appoint advisory and other ad hoc groups as required.

c. Maintenance of minutes, sufficient other records and accounts to provide an annual report of the Working Group activities for such distribution as recommended by the Working Group.

#### F. MEETINGS

1. Meetings shall be held at the call of the Chairman, following coordination with members regarding time, place, and date.

2. Decisions of the Working Group usually shall be made at regular meetings where there is an opportunity for discussion and not by correspondence or telephone calls, except in rare cases of urgency.

3. Minutes of meetings shall consist of a record of important discussions and decisions of the Working Group, but need not be a verbatim record. Minutes shall be distributed to principals and alternates.

#### G. QUORUM

A majority of the members of the Working Group shall constitute a quorum authorized to transact any business duly presented at any meeting of the Working Group.

December 29, 1969





Charles J. Hitch  
President of the University

UNIVERSITY HOUSE  
DAVIS, CALIFORNIA 95616

Emil M. Mrak  
Vice President

June 17, 1970

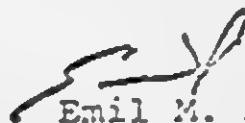
Mr. Parke Brinkley, President  
National Agricultural Chemicals Association  
The Madison Building  
1155 Fifteenth St., N.W.  
Washington, D. C. 20005

Dear Parke:

I am enclosing a copy of a statement which indicates clearly my feelings about the banning of DDT in total. I think this would be a very tragic and unfortunate thing to do.

You may use this statement in any way you wish.

Kindest personal regards,

  
Emil M. Mrak

Enclosure

STATEMENT ON DDT

As an individual, I strongly concur in the recommendation made in the report of the Secretary's Commission on Pesticides and Their Relationship to Environmental Health in December, 1969.

Recommendation 3 of this Commission was as follows:

"Eliminate within two years all uses of DDT and DDD in the United States excepting those uses essential to the preservation of human health or welfare and approved unanimously by the Secretaries of the Departments of Health, Education, and Welfare; Agriculture; and Interior."

As background material and explanation of this recommendation which, by the way, made unanimously by the Commission, I am including the following information.

"The uses of DDT and DDD as pesticides should be limited to the prevention or control of human disease and other essential uses for which no alternative is available. Such uses should be clearly identified and individually evaluated in relation to human hazard from exposure, movement in the natural environment concentration in the food chains of the world, and other environmental considerations. Unanimous approval by the Secretaries of DHEW, USDA, and USDI (who in turn are expected to call on Federal, State and private experts for advice) would provide for identification of essential uses and assure that such approval will be based on sound judgment.

"Abundant evidence proves the widespread distribution of DDT and its metabolites (principally DDE) in man, birds, fish,

other aquatic organisms, wildlife, soil, water, sewage, rivers, lakes, oceans, and air. Evidence also demonstrates that these materials are highly injurious to some nontarget species and threaten other species and biological systems. Elimination of all nonessential uses should be achieved and the period of 2 years is recommended to assure achievement without excessive economic disruption.

"Unavoidable residues of these persistent pesticides will continue to occur in the soil, water, air, and food supplies for a period of years despite restriction of usage in the United States. Reasonable methods must be established for the use of as much of the food supply as possible without hazard to human health.


"Despite diminution of DDT usage, the Commission urges that research be intensified to gain further understanding of the ecological dynamics and public health implications of this example of a persistent chemical widely distributed in the environment.

"It should be recognized that DDT is used in developing nations in the prevention and control of malaria, typhus, and other insect-borne diseases, and in the production of food and fiber. The control of such uses is the responsibility of those nations. They should, however, receive from the United States the full benefit of all available information and assistance on hazards, safe and effective uses of pesticides, and alternative methods of pest control."

The above recommendation and backup statement was made by the Commission.

As an individual, I believe strongly in these statements, especially the one that indicates "The uses of DDT and DDD as pesticides should be limited to the prevention or control of human disease and other essential uses for which no alternative is available."

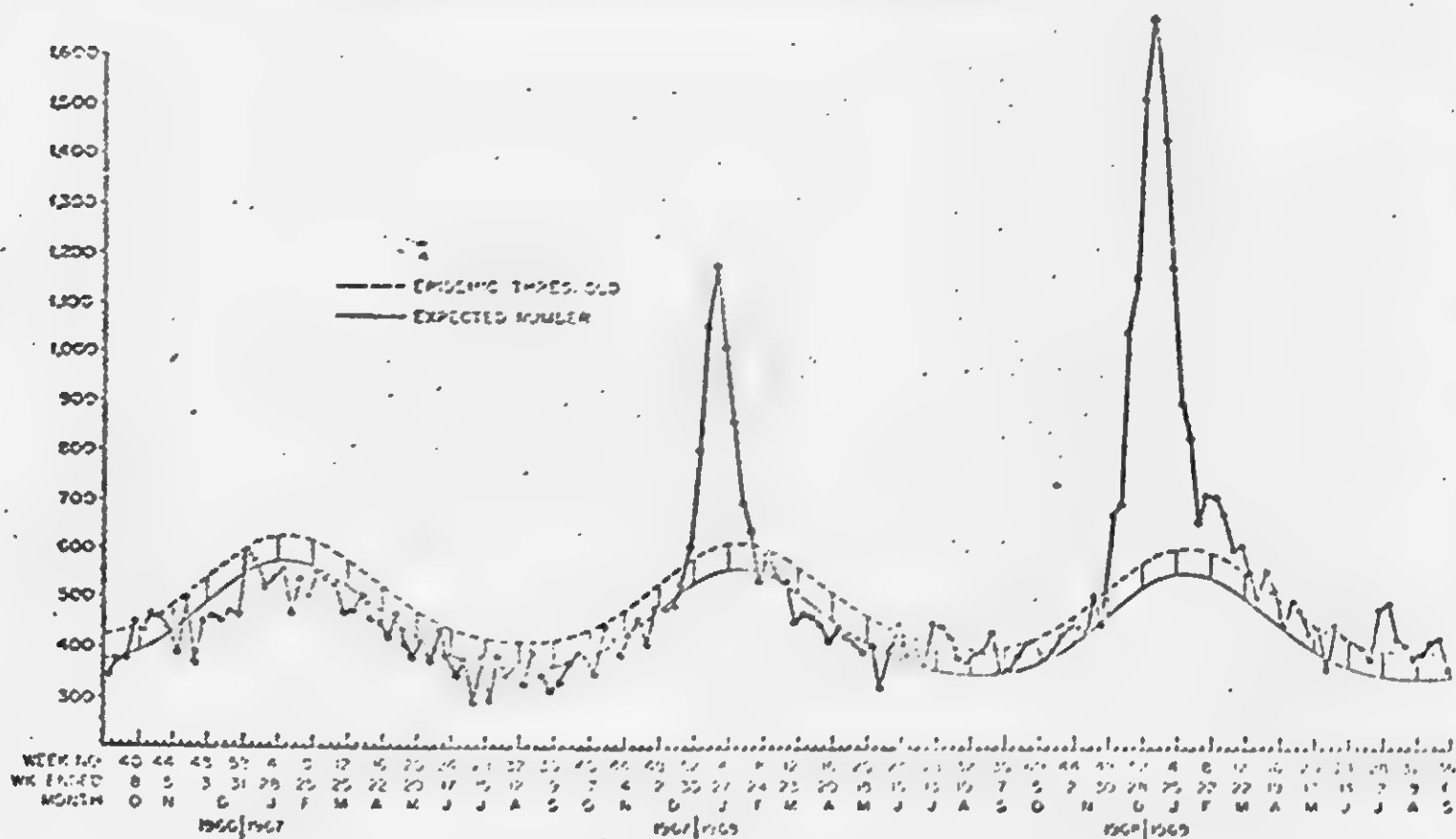
If DDT were to be banned entirely, we could very well find ourselves in an extremely serious situation from the standpoint of public health or even food production. Strong steps have been taken and further steps will be taken within the next year to eliminate DDT, except where absolutely essential. It seems to me the matter is under control and no further requirement is necessary.

  
Emil M. Mark

## REPORTED INCIDENCE OF NOTIFIABLE DISEASES IN THE UNITED STATES, 1968

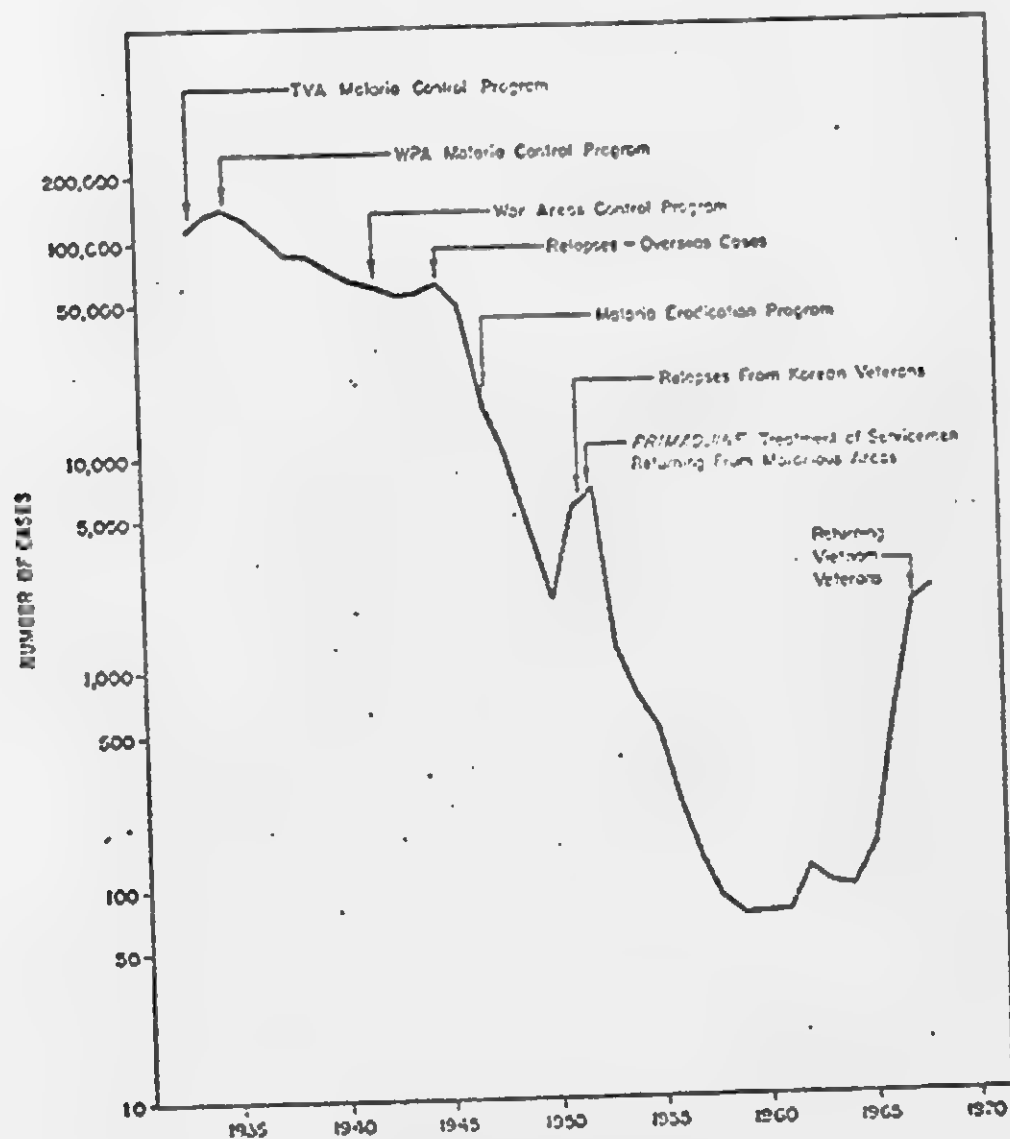
The most dramatic epidemiological event of 1968 was the pandemic of Hong Kong influenza. In the United States the infection was first introduced from the Pacific during September. Scattered outbreaks and sporadic cases were identified with increasing frequency thereafter. Mortality for pneumonic-influenza rose above the epidemic threshold during the week ending December 7, 1968. A sharp nationwide epidemic ensued. Mortality peaked during the second week of January 1969. The total excess mortality during the epidemic from all causes in 122 cities was 19,700 deaths. This Hong Kong influenza epidemic was the most severe since the previous pandemic of Asian influenza in 1957-58 when excess mortality in the same cities was 26,900 deaths.

# PNEUMONIA-INFLUENZA DEATHS IN 122 UNITED STATES CITIES

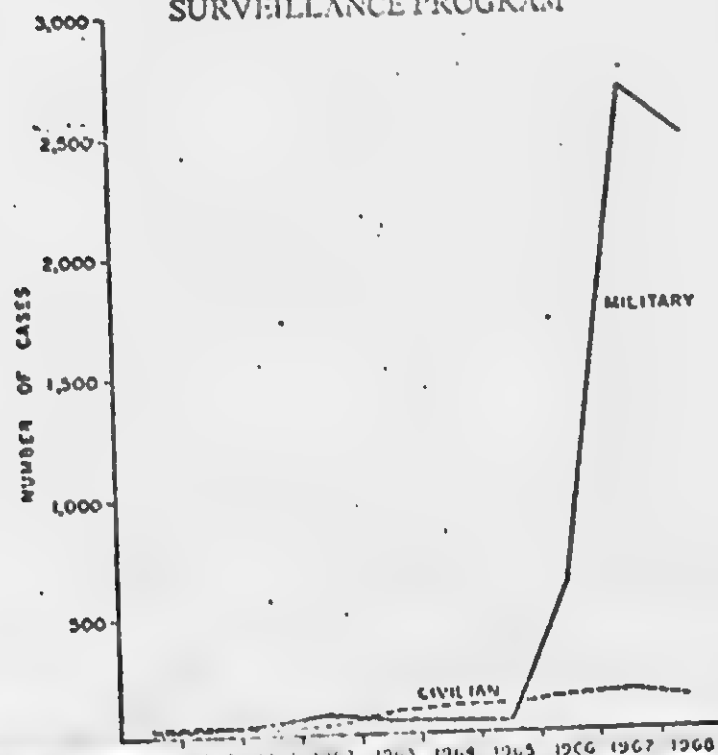


Annual Supplement to the Morbidity and Mortality Weekly Report

MALARIA  
CASES BY DATE OF REPORT, UNITED STATES, 1933-1968



MILITARY AND CIVILIAN CASES OF MALARIA  
UNITED STATES, 1959-1968  
SURVEILLANCE PROGRAM



# Morbidity and Mortality



Vol. 19, No. 22

WEEKLY  
REPORT

For  
Week Ending  
June 6, 1970

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE / PUBLIC HEALTH SERVICE / HEALTH SERVICES AND MENTAL HEALTH ADMINISTRATION  
DATE OF RELEASE: JUNE 12, 1970 - ATLANTA, GEORGIA 30333

## INTERNATIONAL NOTES SMALLPOX - Nigeria

On Mar. 21, 1970, a case of smallpox was reported in a 14-year-old unvaccinated girl from Amayo village, Kwara State, Nigeria. This case was found to be part of a previously unrecognized outbreak in Amayo (Figure 1) in progress since October 1969. Fifty-seven cases had occurred prior to and one subsequent to her onset (Figure 2). The last case was in a person who developed symptoms of smallpox 8 days after vaccination on Mar. 27, 1970; a primary vaccination reaction developed concurrently. The other 58 patients had not been vaccinated. Of the 59 cases, 55 were in males and 24 in females, with 66.1 percent of the patients under 10 years of age (Table 1). During the investigation of this outbreak, five additional cases were uncovered in the nearby town of Ilorin, bringing the total to 64 cases.

## CONTENTS

### International Notes

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To date, no source of infection for the index case has been determined. A known outbreak had occurred in Kwara State in March-April 1969, but no link has been established between these outbreaks.

On March 24, control activities were begun in Amayo and Ilorin which included (1) vaccination using jet injectors  
(Continued on page 214)

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES, UNITED STATES  
(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	22nd WEEK ENDING		MEDIAN 1965 - 1969	CUMULATIVE, FIRST 22 WEEKS		
	June 6, 1970	May 31, 1969		1970	1969	MEDIAN 1965 - 1969
Aseptic meningitis .....	37	24	25	639	509	511
Breast cancer .....	4	9	5	81	72	93
Diphtheria .....	9	1	4	181	64	69
Encephalitis, primary:						
Arthropod-borne, unspecified .....	15	18	22	432	425	557
Encephalitis, post-infectious .....	12	9	18	202	127	351
Hepatitis, acute .....	162	78	543	2,910	2,156	17,500
Hepatitis, infectious .....	1,050	782		23,778	20,126	
Malaria .....	32	46	37	1,428	1,111	236
Measles (rubella) .....	1,585	626	1,671	10,976	15,605	56,155
Meningococcal infections, total .....	36	55	55	1,375	1,824	1,750
Civilian .....	35	52	52	1,233	1,617	1,622
Military .....	1	3	3	142	157	158
Mumps .....	2,741	2,178	---	60,164	51,000	---
Polomyelitis, total .....	---	---	1	2	2	10
Paralytic .....	---	---	1	2	2	9
Rubella (German measles) .....	1,800	2,216	---	42,159	37,214	---
Tetanus .....	4	3	4	44	51	53
Tularemia .....	2	2	3	40	52	62
Typhoid fever .....	8	9	5	95	119	121
Typhus, tick-borne (Rky. Mt. spotted fever) .....	17	27	11	39	76	43
Rabies in animals .....	53	52	60	1,374	1,615	1,555

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax .....	1	Paratyphoid .....	15
Botulism .....	1	Rabies in Man .....	---
Leprosy: Cal.-1, Hawaii-1, Tex.-2 .....	43	Rubella congenital syndrome, Fla.-1 .....	---
Leptospirosis .....	11	Tetanus: Cal.-1, H.J.-4 .....	---
Plague .....	1	Typhus, malarial .....	---

\*Delayed Reports: Trichinosis: Iowa 1



AIRGRAM

A-768

UNCLASSIFIED

C O P Y

TO : Department of State  
DEPARTMENT PRINCE PASS TO CST, HAS/IRC, AGRICULTURE,  
HEW, AND INTERIOR

INFO : OECD PARIS

FROM : Amembassy STOCKHOLM DATE: December 5, 1969

SUBJECT : Swedish Program for Environmental Pollution Control;  
Exemption Granted for Use of DDT in Forestry.

REF : Stockholm's A-209

The decision by the Swedish National Poisons and Pesticides Board (Sift-alinnden) restricting the use of DDT and lindane and forbidding the use of aldrin and dieldrin from January 1, 1970 was reported in Stockholm's A-209. The use of DDT was to be stopped for a test period of two years.

After receiving a request from the Swedish Board of Private Forestry, the National Poisons and Pesticides Board has now granted an exemption for one year from the general prohibition of DDT to permit its use in forestry. It was estimated that without DDT, the large pine weevil would cause some \$20 million in damage to the forests and seedlings. Also some unemployment could result. No replacement for DDT has yet been found to combat the large pine weevil and it is probable that an exemption will be requested again next year.

The Poisons and Pesticides Board has directed more restricted and cautious use of DDT by the forestry industry. Formerly, Sweden used 50-60 tons of DDT per year of which 13 tons were used by the forestry industry. The Poisons and Pesticides Board now assumes that the amount needed for forestry could be reduced to 6-7 tons. The forester will be required to record the quantities used and the number of plants treated in a log, and the seller of DDT must record the quantity sold and report the name and address of the buyer to the Poisons and Pesticides Board. The Board also plans to encourage the foresters to limit treatment with DDT to central work areas and nurseries. Each forester will no longer be permitted to mix his own DDT solution and dump any residues in the nearest ditch, according to the authorities at the Board.

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C O P Y

COMMENT:

Under the DDT control regulations issued by the National Poisons and Pesticides Board earlier this year, provisions were made for exemptions in exceptional instances. The present decision may be considered, therefore, as an "exceptional instance" involving possible loss of employment, an obstacle to the decision, rather than a change in policy. The primary victim of the Board's decision will probably be the Swedish scientific research on the reduction of DDT levels following a complete halt in the use of DDT, which will now lose much of its significance.

CAMERON

UNCLASSIFIED

- 23 - FOREIGN AGRICULTURAL SERVICE

JUN 11 1970

FROM : Ottawa, Canada  
TO : DEPARTMENT OF AGRICULTURE, WASHINGTON  
REF : 22 AL

June 11/70

DATE

CN0069

CHECK ONE:

A ☒ a ☐

SUBJECT: Canada: Ontario Allows DDT for Onion Crops

Ontario Minister of Agriculture William Stewart announced on June 10, 1970, that the use of DDT to eliminate the cutworm infestation threatening the C\$2.5 million onion crop in the Bradford Marsh will be permitted.

Replying to a question in the Ontario Legislature, Mr. Stewart said spraying of the insecticide, banned for normal agricultural use in the province, will take place under close supervision. Press reports quote the Minister as saying: "The method of application will be prescribed so that there will be no fallout in the atmosphere. A close emulsion spray will be used right at ground level."

The government's decision came after a meeting held on Tuesday, June 9, between farmers from the affected area and representatives of the Agriculture and Health departments.

Ontario Health Minister Thomas Wells, whose department controls the government's pesticides control service, said he had agreed to the use of DDT since it is "the only effective thing for a very urgent problem."

Under regulations that went into effect in Ontario at the beginning of 1970, DDT may be used only to protect tobacco crops from cutworm damage; to limit plant bug damage to apple trees; and to control bees when used by licensed structural exterminators.

About 250 marsh farmers grow onions and about 2,500 acres were planted this year. Officials said the infestation of cutworms varies from field to field but nearly all fields have had some damage. They said that if a suitable chemical had been available, the entire area would have been sprayed a week ago.

*Alfred R. Persi*

Alfred R. Persi  
Assistant Agricultural Attache

UNCLASSIFIED  
CLASSIFICATION

UNITED STATES DEPARTMENT OF AGRICULTURE

FAS-1-1-1  
5-57

RICHARD T. RAPPOLO, Sr., M.D., A.A.C.T.

Clinical Toxicologist San Francisco  
Department of Public Health Emergency Hospital  
System. Staff: St. Marys, Notre Dame, Callison  
Hospitals, San Francisco.

Executive Editor: Clinical Toxicology;  
Marcel Dekker, Inc.

Education: B.A. Creighton University 1959  
M.D. University of Nebraska  
College of Medicine 1964

Professional Societies:

American Medical Association, California  
Medical Association, San Francisco Medical  
Society, Founding Member American Academy  
of Clinical Toxicology, Society of Sigma Xi.

Professional Experience:

Analytical Toxicologist Omaha, Douglas  
County Coroners Office, 1961-1964;  
Research Association, Eppley Cancer  
Institute, Omaha, Nebraska; Principal  
Investigator, Community Pesticides Study,  
California State Department of Public  
Health.

Publications:

Over 25 research papers published with  
the most recent being "LSD-25 as an  
Antedote for Ergotamine Tartrate Poisoning"  
in Europ. Journal of Toxicol, Nov.-Dec. 1969;  
LD50 and Generic Cross Index of "Agricultural  
Chemicals Applied Commercially in a  
California County 1964-1965" in Clinical  
Toxicology: March, 1969.

25 -  
October 16, 1969

STATEMENT BY RICHARD T. RAPPOLT, SR. M.D.  
TOXICOLOGIST, SAN FRANCISCO PUBLIC HEALTH SERVICE  
TO DDT HEARING OFFICER,  
WASHINGTON STATE DEPARTMENT OF AGRICULTURE

Recently after a public hearing in Sacramento, California concerning the possibility of phasing out certain chlorinated hydrocarbons, particularly DDT, it occurred to me that the alleged concern about the short and long-range toxicity of technical-grade DDT to humans et al. by paramedical scientists (none of which recently has been associated with human agricultural chemical studies) made me wonder why once again, responsible scientists such as Jukes, Hine, Hayes, Ottoboni, Quimby, and others were compelled to exonerate DDT from any serious wrongdoing except in the minds and subsidized budgets of certain fish, fowl, and flower alarmists whose concern with human toxicology was at most biased, superficial, and self-promoting.

Some of their ecological arguments might have garnered them a Doctorate in their chosen field but surely Freshman Chemistry and Logic were not part of their undergraduate curriculum or so it would seem. Several of their unique pronouncements refuted by ever eternal unsensational facts relating to our discipline were as follows:

ALLEGATION: DDT is highly mobile in water.

FACT: The solubility of DDT in H<sub>2</sub>O is 1.2 parts per BILLION.

ALLEGATION: In that case, DDT codistills with H<sub>2</sub>O carrying it all over the world.

FACT: The vapor pressure of DDT is 0.2 mm Hg (760 mm Hg is one atmosphere) at 125°C (225°F).

QUESTION: How then does DDT get into the ocean food chain off the Los Angeles coast?

ALLEGATION: Human urine.

FACT: DDA is high in human urine only in DDT plant workers, the majority of the chlorinated hydrocarbon residue comes from garbage disposal units that eject meat trim and other food stuffs into the ocean-bound sewage system.

ALLEGATION: DDT is an enzyme inducer...ah ha!

FACT: Correct, as are petroleum distillates, diphenylhydantoin, barbituric acid compounds, and lactose, which if memory serves me was found in mother's milk. To mention enzyme inhibitors, as a didactic exercise, two come to mind, anti-histamines and organic phosphates.

ALLEGATION: DDT is laid down in human fat forever.

FACT: DDT is laid down in human fat, which has in itself a 100% turnover rate in less than a year plus the half-life of DDT in adipose tissue is approximately 3-6 months. In fact, DDA excretion in DDT plant workers can be increased by administration of 500 mg glutethamide at h. s. (Rappolt, unpublished reports: California Community Studies on Pesticides 1966).

The published scientific research generated by the California pesticide study was gleaned from Kern County, which has one of the heaviest pesticide inputs per square mile in the world. With the full cooperation and access to the files of the Kern County Agricultural Commissioner, it was found that in 1964-1965 there were 118 different generic chemicals applied and of these 42 had a higher short-term toxicity than DDT. Among these compounds and others were found: nicotine, compounds of arsenic (known carcinogens), calcium cyanide, TEPP and parathion (essentially nerve gases), strychnine, sulfuric acid, and other interesting materials such as: plant hormones, Veratrine veride, a botanical anti-hypertensive



agent, streptomycin, an ototoxic antibiotic, and a bacteria *Bacillus thuringiensis berliner*. Where were these journalistic scientists and their pronouncements over these more toxic or poorly studied compounds, drugs, and organisms? (Clin. Toxicol., Mar. 1969).

Later more "newspaper scientists" implied that the apparent increase in cancers of the blood and blood-forming organs were a direct result of pesticide residues in our food and environment. A meticulous, year-long search and analysis of death records for 10 years in Kern County and California as a whole failed to reveal such a relationship (California Medicine, Sept. 1967). This particular epidemiological study was cited by the Journal of the American Medical Association with a feature article: Increased Pesticide Use Statistically Unrelated to Neoplasm Mortality Rates in California.

Still later, a review by myself indicated that DDT and a contaminant DDD had been used in the U.S. to eradicate the insect vectors of bubonic plague, yellow fever, malaria, encephalitis, and typhus. Also DDD had been used on humans for remission of Cushing's Syndrome (Nebraska State Med. J., July 1967). Recently I've been using 5 gm of technical-grade DDT as an enzyme inducer internally for human barbiturate intoxications.

Following this I was an observer to a study by the U.S. Public Health Service on 35 men with 11 to 19 years of exposure in a plant that has produced DDT continuously and exclusively since 1947; surely if there were any short-, medium- or long-range toxicity to DDT it would have turned up in these men whose fat contained 38 to 647 ppm of DDT as compared to the national average of 8 ppm. This elegant study's findings from medical histories, physical examinations, a routine battery of clinical laboratory tests, and chest X-ray did not reveal any ill effects attributable to DDT exposure. In all these years no man was sick, hospitalized, or died from DDT poisoning and no spontaneous cancers occurred among any workers. (Arch. Environ. Health, Dec. 1967). Also, NO DEATHS HAVE EVER BEEN REPORTED IN CALIFORNIA FROM THE AGRICULTURAL USE OF DDT.



Finally, to still the voices of those that shouted that DDT was harmful to the fetus, or mother, or damaged chromosomes in the infinitesimal amounts (one part per million equals one huge mouthful of food subtracted from ALL the food you'll eat in 60 years: I myself have eaten 1 level teaspoonful acutely) found in humans. Yet another study in Kern County on 10 stillbirths and/or abnormalities following delivery showed a mean of 4.3 ppm of DDT in their fat, lower than any other mean level in adults and lower than the mean 4.8 ppm of DDT in the placentas of normal live births (Clin. Toxicol. Mar. 1968).

Why then DDT? Of all the pesticides used, nearly half of them are more acutely toxic to mammals, and some dozen are known carcinogens for animals and man. Why indeed DDT??? Only DDT has had the press and romance; only DDT was associated with a Nobel Prize and the virtual eradication of typhus and malaria..... Why again DDT??? Young "crusading" scientists cannot make their reputation by calling for a moratorium on say, lead arsenate, which is used currently and associated with lung cancers in former tobacco and grape field applicators; reputations are made by killing heroes and, to some of the Lee Harvey Oswald's of the scientific world, DDT fulfills this imperial aura and "when you strike at a king you must kill him."

# VANDERBILT UNIVERSITY



NASHVILLE, TENNESSEE 37203

TELEPHONE 254-5411 AREA

*Division of Toxicology • School of Medicine • Station*

October 11, 1969

DDT Hearing Coordinator  
State Department of Agriculture  
P. O. Box 128  
Olympia, Washington

Dear Sir:

Since the question of the possible carcinogenic action of DDT has been raised again in recent months, I should like to supplement the statement I sent you earlier by the following account.

An early attempt to produce cancer in highly susceptible type C mice by painting their skins for 52 weeks with a 5% solution of DDT in kerosene produced neither benign nor malignant tumors, although the kerosene did produce chronic inflammatory changes (Bennison and Mostofi, 1950).

Fitzhugh and Nelson (1947) of the Food and Drug Administration described what they considered a minimal hepatocarcinogenic tendency in rats fed DDT for 2 years. The tumors were from 5 to 12 mm in diameter and paler than the surrounding tissue. Microscopically, they showed an almost complete loss of lobular architecture but were not sharply circumscribed from the rest of the liver tissue. Mitoses were not seen. Some of the cells showed internal changes considered characteristic of the effects of DDT. The authors felt that the tumors could be regarded as adenomas or as low grade hepatic cell carcinomas. It is difficult to see how this conclusion was reached, because it was shown in the same paper that the effects of DDT on the liver are reversible. In any event, when the Director of the Division of Pharmacology, Bureau of Scientific Research, Food and Drug Administration, summarized this and a great deal of later research performed under his supervision, he concluded simply: "DDT is not a carcinogen." (Lehman, 1965.)

By the time Lehman published this conclusion, it was generally recognized that (a) the changes produced by DDT in the livers of rodents involved primarily the endoplasmic reticulum responsible for formation of the microsomal enzymes of the liver, (b) the changes are reversible and (c) the morphological changes are peculiar to rodents. It was also recognized that the changes are not really characteristic, but essentially identical with those produced by the drug phenobarbital, the botanical insecticide pyrethrum, and a number of other materials.

Recently, three papers have been interpreted as indicating that DDT is a carcinogen.

Innes et al. (1960) reported that the tumorigenicity of selected pesticides and industrial compounds was tested by continuous oral administration to both sexes of two inbred strains of mice, starting at the age of 7 days. The chemicals were given by gavage until weaning and thereafter as a mixture in the diet. Maximal tolerated dose was given for the entire period of observation, about 18 months. The authors expressed that the dose received by the mice was far in excess of that likely to be assumed by humans. One of the compounds that gave a statistically significant positive result was DDT. The incidence of tumors was comparable to the mean tumor incidence produced by a group of positive control compounds, most of which are weak or questionable carcinogens of no demonstrated importance to human health. The authors made no distinction between hematomas and carcinomas. It is difficult to understand why, in denying the practicality of making this important distinction, they entirely neglected the matter of reversibility. A full account of the study is promised later. In the meantime there is no assurance that the small number of tumors observed in mice exposed to DDT were different from the "nodules" described by Tschuh and Nelson in 1947. Furthermore, the entire testing scheme was adopted in the hope of achieving greater sensitivity, but no responsibility has been taken for ensuring its biological significance. There is no assurance that the same test would give positive results for some common items of the diet such as spices, caffeine, even table salt.

Since their first report in 1966, Trajtan and Kenney have published many accounts of their multigenerational studies on DDT in mice. The early reports were in Hungarian and Russian. Their most easily available report of the old work was published this year (Trajtan and Kenney, 1967). Briefly, five generations of inbred BALB/c mice were maintained on a diet containing DDT at such a concentration that they received about twice the dosage received by the workers studied by Law et al. (1967). No effect was demonstrated in either reproductive performance or spontaneous or caffeine-induced fertility. The degree and incidence of leucocytosis was greater in the DDT group than in the control group, especially in the latter generations. The greater incidence of leukemia and malignant tumors in the DDT than in the control group attained significance in the  $F_2$  and  $F_3$  generations, respectively, and subsequently increased in each succeeding generation. Interpretation of the results is very difficult. Leucocytosis not only increased progressively in succeeding generations in the DDT mice but also in the controls. The controls showed leukemia, which was especially odd because the authors claimed that leukemia is unknown in the strain of mice they used. An investigation by the World Health Organization showed that all of the findings may have been explained by spoiled food contaminated by aflatoxins. This would explain the unexpected findings in the controls as well as the variability of results in the course of time. In any event no conclusion is justified on the basis of their paper. The World Health Organization has arranged for a repetition of the test in separate laboratories. Any decision will have to await the new results.

Radomski et al. (1963) reported that the concentration of DDT and/or DDE was increased in the body fat of people who died of primary malignancy of the liver, metastatic malignancy of the liver, leukemia, carcinoma of various other organs, toxic hepatitis, portal cirrhosis, amyloidosis, arteriosclerosis, encephalomalacia, and hypertension. The comparison was made with generally younger people killed by automobiles, gunshot, and other accidents. Although minor increases of one or both of the compounds were found in the liver or in the brain in some of the conditions listed above, the authors pointed out that their major conclusions were based on the concentration of pesticides in adipose tissue, not on the concentrations in liver or brain. In one sense no conclusion was reached but it was suggested that the increased pesticide concentration might have

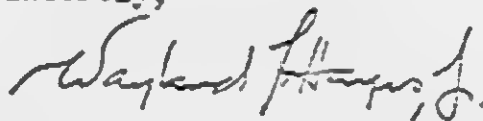
2.

been the cause of disease or that disease might have been the cause of increased concentration. If, in fact, DDT were the cause of various fatal diseases other than poisoning, then many of the workers studied by Laws et al. (1967) would have died long ago, for they have been exposed as long as other Americans and for 19 years at levels leading to storage very much higher than any observed by Radonski et al. Actually, what Radonski et al. observed is readily explained by the debilitating nature of the diseases they studied and by the fact that loss of body fat leads to an increase in the concentration of DDT and DDE in the fat that remains. The authors stated that no correlation was found between the elevated pesticide levels and the length of stay in hospital or with inanition. Unfortunately, length of hospital stay has no bearing on the matter because many people suffering from debilitating diseases receive only terminal hospital care. No correlation would be expected. Furthermore, any meaningful correlation with weight loss would have to be based on medical records of the degree and rate of loss. The way in which the authors gathered their information on weight loss guaranteed it would be meaningless.

Unless more convincing evidence is obtained than that reviewed above, I conclude that Dr. Lehman was correct. DDT is not a carcinogen. //

A list of the references cited is enclosed.

Sincerely,



Wayland J. Hayes, Jr. M.D., Ph.D.  
Professor of Biochemistry

WJH/bh  
Encls.

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VANDERBILT UNIVERSITY  
SCHOOL OF MEDICINE  
Department of Biochemistry  
Division of Toxicology  
Nashville, Tennessee 37203

October 10, 1969

DDT Hearing Coordinator  
State Department of Agriculture  
P. O. Box 128  
Olympia, Washington

Dear Sir:

The enclosed statement entitled "Toxicity of DDT to Man and its Relation to Dosage" is submitted for your hearing on DDT scheduled for 14-16 October. I request that the statement be read at the hearing.

Since you may not be acquainted with me or may wish some formal documentation, I enclose my curriculum vitae. You will appreciate that my years of contact with the U. S. Public Health Service and the World Health Organization and my present contact with a medical school have focused my interest on the protection and improvement of health.

Those who wish to see DDT banned sometimes have insisted that their petitions make no mention of a relationship between DDT and human health. In practice they have always been eager to misinterpret or distort the results of research to make it appear that human beings are threatened. An example involves the estrogenic effects of DDT and some related compounds, which it has been suggested threaten to feminize men and interfere with their sex drive or the fathering of children. Actually it has been known for a long time that large doses of DDT have an estrogenic effect in birds (Burlington and Lindeman, Proc. Soc. Exper. Biol., 74: 48, 1950). The effect is not sufficiently marked to interfere with the reproduction of chickens if DDT is used to control bird lice. Recently, it was possible to demonstrate a transient estrogenic effect of DDT in rats at a dosage near the fatal level and approximately 333 to 1700 times greater than that required to produce the same effect with different compounds that have practical use as estrogens (Welch et al., Toxic. Appl. Pharmacol., 14: 358, 1969). There is not a shred of evidence that even the doses of DDT received by men employed in formulating plants have any effect on their sexual functions.



The possibility of an effect on people in the general population who absorb much less DDT is even more absurd.

Other examples might be cited of what appear to be deliberate attempts to frighten the citizens of this country about matters they are not trained to evaluate. The agents of an enemy power could wish no better help.

Unfortunately, most reports on the toxicity of DDT for man -- and the one enclosed is no exception -- have ignored almost entirely the most important practical implication of the compound for human health, namely, the control of malaria. The continuing crucial importance of DDT for malaria control has been emphasized by the Director General of the World Health Organization and by the units of WHO directly responsible for malaria eradication and vector control. While caring for all species, we owe some special allegiance to our own, even human beings living in other countries. DDT has been regulated since it was first released for use as a military insecticide. Further regulation might be possible without interfering with its use in preventing disease. However, the question of DDT is inseparable from the question of human health. If we restrict DDT so as to interfere directly or indirectly with its availability and use in combating malaria, we must accept responsibility for the suffering and death of thousands of people.

Sincerely yours,

Wayland J. Hayes, Jr., M.D., Ph.D.  
Professor of Biochemistry

WJH/eb  
Encls.



## Toxicity of DDT to Man and its Relation to Dosage

Wayland J. Hayes, Jr.\*

Since all compounds, even those essential to health, are toxic if absorbed in excessive amounts, it is essential in evaluating the safety of a chemical for a particular species to learn its dosage-response relationships. Information on the dosage of DDT necessary to injure man was obtained by early studies of volunteers and from some accidents. Information on tolerated doses was obtained from volunteers and persons with occupational exposure. The relation of dosage to storage and excretion in man was learned from studies of volunteers and, for the general population, from analysis of food and tissues.

The following sections represent an attempt to outline what has been learned about the effects of different dosages of DDT in man. A final section is a discussion of the results.

\* Professor of Biochemistry, Division of Toxicology, Department of Biochemistry, Vanderbilt University School of Medicine and formerly Chief Toxicologist, Pesticides Program, U. S. Public Health Service.

## Clinical Aspects of Studies of Volunteers

### Experimental Oral Exposure. - Careful study of volunteers who

ingested one or a few large doses of DDT have established that 10 mg/kg is the threshold dosage that leads to significant discomfort in some people but to no detectable effect in others. That the observed difference is due to individual variation of the subjects is indicated by the results of accidents in which dosage of 10 mg/kg (or in a single instance, 6 mg/kg) led to mild poisoning in some persons but no effect in others (Hsieh, 1954). However, it is also possible that investigators have differed in their evaluation of completely subjective changes attributed by some to dosages of about 3.5 mg/kg.

Velbinger (1947-a, 1947-b) reported that doses of 250 or 500 mg of DDT in the form of a suspension or a solution in oil produced no effect except a variable, slight disturbance of the sensitivity of the mouth. Doses of 750 or 1000 mg in oil solution led to disturbance of the sensitivity of the lower part of the face, uncertainty of gait, malaise, hypersensitivity to contact, cool moist skin, but no change in reflexes. Discomfort reached a peak about 6 hours after ingestion. A dose of 1500 mg in oil solution produced prickling of the tongue and around the mouth and nose beginning about 2.5 hours after the dose. Disturbance of equilibrium, dizziness, confusion, and tremor of the extremities gradually increased. A peak reaction characterized by malaise, headache, fatigue and delayed vomiting was reached about

10 hours after ingestion. Recovery was almost complete in 24 hours.

Other investigators (Domenjoz, 1944; MacCormack, 1945; Neal et al., 1946) found this same range of doses (250 to 1500 mg) were without clinical effect. The difference was not associated with failure of absorption, for excretion of the metabolite DDA was measured in connection with one study (Neal et al., 1946), and it was noted that lice were killed when fed on a man 6 and 12 hours after he had ingested 1500 mg of DDT dissolved in butter (MacCormack, 1945).

It has been noted in the course of tests with volunteers that dilute colloidal aqueous suspensions of DDT are odorless and tasteless (Domenjoz, 1944; Hoffman and Lendle, 1948). Saturated alcoholic solutions of DDT have a weak aromatic taste or rather odor. Some people find these solutions slightly anaesthetic to the tongue (Hoffman and Lendle, 1948). The taste of DDT in vegetable oil is so slight that many persons can not identify capsules containing 0, 3.5, and 35 mg of DDT when they were presented separately but can arrange them in proper order when one of each is available for comparison.

The possible clinical effects of many repeated doses of DDT were first explored by Fennah (1945). Because of his interest in predicting the results of indiscriminate use, he expressed the exposures in terms of environmental levels rather than in dosage units. The exposures were clearly higher than those ordinarily encountered. In one test, lasting a total of 11.5 months, Fennah daily inhaled 100 mg

of pure DDT and drank water dusted at the rate of 3,240 mg/m<sup>2</sup>. Much of the inhaled dust must have been deposited in the upper respiratory tract and swallowed. Later, for 1 month, Fernah ate food all of which had been sprayed at the rate of 2,160 mg/m<sup>2</sup> after it had been served. No ill effect of any kind was observed.

Some later studies of DDT in volunteers have been designed to explore the details of storage and excretion of the compounds in man and to search for possible effects of doses considered to be safe. In the first of these studies, men were given 0, 3.5 and 35 mm/man/day. These doses, plus DDT measured in the men's food, resulted in dosage levels of 0.0021-0.0034, 0.038-0.063, and 0.36-0.61 mg/kg/day, respectively, the exact value depending on the weight of each individual. Six volunteers received the highest dose of technical DDT for 12 months, and three received it for 18 months. A smaller number of men ingested the lower dose of technical DDT or one of the doses of recrystallized DDT for 12 or 18 months. No volunteer complained of any symptom or showed by the tests used any sign of illness that did not have an easily recognizable cause clearly unrelated to the exposure to DDT. At intervals, the men were given a systems review, physical examination, and a variety of laboratory tests. Particular attention was given to the neurological examination and liver function tests, because the major effects of DDT in animals involve the nervous system and the liver (Hayes et al., 1956). The same result was obtained in

a second study in which the same doses were given for 21 months and the volunteers were observed for a minimum of 27 additional months (Hayes et al., 1961). Information on storage and excretion gathered in these studies is discussed under a subsection of Laboratory Findings below.

Recently, DDT has been used on an experimental basis at dosage rates varying from 0.3 to 3 mg/kg/day for periods up to 7 months in an attempt to decrease serum bilirubin levels in selected patients with jaundice. No side effects were observed. No improvement was noted in patients with jaundice based on cirrhosis who had no demonstrated liver enzymes deficiency. However, in a patient with familial, nonhemolytic, unconjugated jaundice based on a deficiency of glucuronyl-transferase, treatment with DDT rapidly reduced the plasma bilirubin level to the normal range and relieved the patient of nausea and malaise from which he had suffered intermittently. The liver function tests as well as other laboratory findings remained normal. The improvement was maintained during the 6 months when DDT was administered, and had persisted for 7 additional months at the time the report was written. In this case, a dosage of 1.5 mg/kg/day produced a steady rise in plasma levels of p,p'-DDT from an initial level of 0.005 ppm to a maximum of 1.33 ppm at the end of treatment. At this time, the concentration in body fat was 203 ppm. Plasma levels fell slowly after dosing was stopped (Thompson et al., 1969).

The highest daily intake in this series was six times greater than the highest level administered in earlier studies of volunteers and about 7500 times greater than the DDT intake of the general population.

The highest value for p,p'-DDT in serum observed in the entire series was 1.330 ppm compared to 0.996 ppm, the highest value reported by Laws et al., (1967) for formulating plant workers.

Experimental Dermal Exposure. - Depending on dosage, oral administration of DDT to volunteers has produced either no illness or brief poisoning entirely similar to that seen in experimental animals. The oral dosage necessary to produce any clinical effect was almost always 10 mg/kg or more. It is a strange coincidence that, in two instances, involving a total of only three subjects, experimental dermal exposure to DDT was followed by fatigue, aching of the limbs, anxiety or irritability, and other subjective complaints. Recovery was delayed a month or more (Wigglesworth, 1945; Case, 1945). In neither instance was there an independent control. Although the dosage was unmeasured, the amounts of DDT absorbed must have been much smaller than those involved in the oral tests. One of the studies involved self-experimentation by one man. A similar but somewhat more severe test on six volunteers produced no toxic or irritant effect at all (Dangerfield, 1946). In view of all other experiments and extensive practical experience, it must be concluded that the illnesses reported by Wigglesworth and Case were unrelated to DDT.

With the exceptions just mentioned, dermal exposure to DDT has been associated with no illness and usually no irritation (Domenjoz, 1944; Cameron and Burgess, 1945; Dangerfield, 1946; Chin and T'Ant, 1946; Wasicky and Unti, 1944; Draize et al., 1944; Haag et al., 1948; Fennah, 1945). In fact, Hoffman and Lendle (1942) reported that even subcutaneous injection of colloidal suspensions of DDT in saline in concentrations up to 30 ppm caused no irritation. Zein-el-Dine (1946) reported that DDT-impregnated clothing caused a slight, transient dermatitis, but the method of impregnation was not stated and the absence of solvent was not guaranteed. Other more thorough studies of DDT-impregnated clothing have found it not irritating (Domenjoz, 1944; Cameron and Burgess, 1945).

Chin and T'Ant (1946) applied small pads impregnated with different formulations of DDT to the inner surface of the forearm of 32 volunteers whose cutaneous sensation had previously been measured for a period of 5 weeks. Pads impregnated with all the elements of the formulation except DDT were applied to the corresponding position of the other arm as a control. Powdered DDT and 5 per cent solutions of DDT showed little effect. Ten per cent and 20% solutions in olive oil and petrolatum showed no remarkable effect on sensation of pain, cold or heat, but reduced tactile sensation in most cases so that the minimal pressure that could arouse the tactile sensation was 1 to 2.5 g/cm<sup>2</sup> higher than in the control.



Experimental Respiratory Exposure. - In order to determine the consequence of frequent and indiscriminate use of DDT, Fennah (1945) inhaled 100 mg/day for a total of 11.5 months. No ill effects were observed. Neal et al. (1944) reported almost continuous daily exposure to aerosols sufficient to leave a white deposit of DDT on the nasal vibrissae of the volunteers. This exposure produced moderate irritation of the nose, throat, and eyes. Except for this irritation during exposure, there were no symptoms, and laboratory tests and physical examination, including neurological evaluation, failed to reveal any significant changes.

#### Accidental and Suicidal Poisoning

Cases of accidental and suicidal poisoning in which the effects were clearly caused by DDT are summarized in Table 1. All of these cases involved ingestion. The signs and symptoms of poisoning were entirely consistent with those observed in volunteers, except that the spectrum of effects was broader because some of the accidental and suicidal doses were very high. A few persons apparently have been killed by uncomplicated DDT poisoning but none of these cases was reported in detail. Death has been caused much more frequently by the ingestion of solutions of DDT, but in most instances the signs and symptoms were predominantly or exclusively those of poisoning by the solvent (Hayes, 1959). This does not mean that the toxicity of the

TABLE 1

SUMMARY OF THE EFFECTS OF THE ACCIDENTAL  
OR SUICIDAL INGESTION OF DDT

Individual Dose (mg), Formulation, No. Persons	Result and Reference
3000-4500 in food, 1 man	Onset in 1 hr; vomiting; restlessness; headache; heart weak and slow; recovery next day. (Mühlens, 1946).
Unknown dose in tarts, 25 men	Onset in 1-2.5 hrs; all weak and giddy; 4 vomited; 2 hospitalized; one confused, incoordinated, weak; one with palpitations and numbness of hands; recovery in 24-48 hrs. (Mackerras and West, 1946).
5000-6000 in pancakes, 3 men	Onset 2-3 hrs; throbbing headache; dizziness; incoordination; paraesthesias of extremities; urge to defecate; wide; nonreacting pupils; reduced vision; dysarthria; facial weakness; tremor; ataxic gait; reduced sensitivity to touch; reduced reflexes; positive Romberg; slightly low blood pressure and persistent irregular heart action; partial recovery in 2-3 days, but slight jaundice appeared 4-5 days after ingestion and lasted 3-4 days; all normal 19 days after poisoning except irregular heart action in one. (Naevsted, 1947).
2000 in pancakes, 2 men	No illness.
Up to 20,000 in bread, 28 men	Onset in 30-60 min. in those most severely affected; men first seen 2-3 hrs after ingestion; in spite of severe early vomiting that reduced the effective dose, severity of illness and especially intensity of numbness and paralysis of extremities proportional to amount of DDT ingested; all but 8 men recovered in 48 hrs; 5 others fully recovered in 2 weeks, but 3 men still had some weakness and ataxia of their hands 5 weeks after ingestion (Garrett, 1947; 1950).
Unknown dose from flour, about 100 women	Onset about 3.5 hrs after ingestion; total of about 85 cases of which 37 were hospitalized; symptoms mild and similar to those in earlier outbreaks except gastrointestinal disturbance in most severe cases included abdominal pain and diarrhea as well as nausea; most fully recovered in 24 hrs (Jude and Girard, 1949).

(Continued)

TABLE 1 (Cont.)

Individual Dose (mg), Formulation, No. Persons	Result and Reference
Unknown dose, 14 cases	Symptoms in established cases similar to those reported earlier (Francene <u>et al.</u> , 1952).
286-1716 in meat balls. 8 cases, 11 exposed	With the exception of one man who was already sick when he received a dosage of 6 mg/kg, poisoning did not occur at dosages of 5.1 to 10.3 mg/kg. Ingestion of 16.3 to 120.5 mg/kg produced excessive perspiration, nausea, vomiting, convulsions, headache, increased salivation, tremors, tachycardia, and cyanosis of the lips. Onset varied from 2 to 6 hours depending on dosage. Recovery required as much as 2 days (Hsieh, 1954).
Unknown dose, 1 case	Death 13 hrs after suicidal ingestion (Committee on Pesticides, 1951).
Unknown dose, 22 unrelated cases	Twenty-two separate cases, including 15 attempted suicides; some complicated by solvents; 3 deaths (Committee on Pesticides, 1951).

solvent always predominates. For example, the recurrent convulsions in a case reported by Cunningham and Hill (1952), though more characteristic of poisoning by one of the cyclodienes, was certainly not typical of solvent poisoning. A 2-year-old child drank an unknown quantity of fly spray of which 5% was DDT, but the nature of the other active ingredients or the solvent was unknown. About 1 hour after taking the material, the child became unconscious and had a generalized, sustained convulsion. Convulsions were present when the child was hospitalized 2 hours after taking the poison but the fits were controlled by barbiturates and other sedatives. Convulsions reoccurred on the fourth day and again on the 21st day but were stopped each time following renewal of treatment. On the 12th day, it was noted that the patient was deaf. Hearing began to improve about the 24th day and was normal as were other neurological and psychic findings when the patient was seen about 2.5 months after the accident.

There have been no accidents or suicides involving respiratory or dermal exposure leading to recognized signs and symptoms of DDT poisoning. This is true even though sufficient respiratory exposure to aerosols or sufficient dermal exposure to solutions can cause poisoning in animals, and the difference is certainly one of dosage.

An entirely different problem involves diseases thought to involve sensitization or at least a high degree of individual susceptibility. Thus, one or a few cases of aplastic anemia, agranulocytosis,

purgate, polyneuropathy, and dermatitis have been attributed to DDT. In not a single instance has the relationship of cause and effect been proved. In fact, in only a few cases was the exposure moderate and in most cases exposure was trivial. However, since these conditions are known to occur in rare individuals following exposure to a wide range of chemicals, including some common drugs, there is no way at this time to exclude the possibility that DDT may be capable of causing one or more of them. In evaluating this possibility, two facts must be kept in mind: (a) The reported incidence of these conditions following exposure to DDT was always extremely low and reports of it have become even less frequent in recent years. (b) The total incidence of these conditions irrespective of cause has shown no detectable increase since the introduction of DDT.

It has also been alleged that DDT causes or contributes to a wide variety of diseases of man and animals not previously recognized to be associated with any chemical. Such diseases included cardiovascular disease, cancer, atypical pneumonia, retrolental fibroplasia, poliomyelitis, hepatitis, and "neuropsychiatric manifestations" (Biskind, 1952; 1953; Biskind and Bieber, 1949), and many others. Without exception, the cause of these diseases were unknown or at least unproved at the time of the allegation. Needless to say, the charge that DDT predisposed to poliomyelitis was dropped after the disease was controlled through the use of vaccines. Unfortunately, there is no

immediate possibility of controlling cardiovascular disease, cancer, or many of the less common conditions in man that have been ascribed to DDT. In the meantime, such irresponsible claims could produce great harm and, if taken seriously, even interfere with scientific search for true causes and realistic means of prevention.

#### Occupational Exposure and Use Experience

The safety record of DDT is phenomenally good. It has been used for mass delousing in such a way that the bodies and inner clothing of thousands of people of all ages and states of health were liberally dusted with the compound. By necessity, the applicators worked in a cloud of the material. Other applicators have sprayed the interior of millions of homes in tropical and subtropical countries under conditions that Wolfe et al. (1959) showed involved extensive dermal and respiratory exposure. A smaller number of men have made or formulated DDT for many years. Extensive experience and numerous medical studies of groups of workers have been reviewed (Hayes, 1959). Dermatitis was commonly observed among men who used DDT solutions. The rashes were clearly due to the solvent, especially kerosene. As often happens with rashes caused by petroleum distillates, they were most severe in men when they first started work and cleared in a few days unless contamination was exceptionally severe. A small number of workers experienced mild narcotic effects (vertigo and nausea) from solvents when working in confined spaces.



Gil and Miron (1949) reported that some persons suffered temporary irritability, fatigue, and other ill defined symptoms after exposure in the dusty atmosphere of a delousing station but the relation of these atypical findings to DDT was not clear. With these exceptions due largely to solvents, no illnesses clearly attributable to the formulations, much less to DDT, were revealed by the early studies.

Ortelee (1958) carried out clinical and laboratory examinations of 40 workers, all of whom were exposed to DDT and some of whom were exposed to a number of other pesticides. The men had been employed at this work with heavy exposure for 0.4 to 6.5 years and with slightly less exposure for as much as 8 years. Exposure was so intense that during working hours many of the men were coated with a heavy layer of concentrated DDT dust. By comparing their excretion of DDA with that of volunteers given known doses of DDT, it was possible to estimate that the average dosage of three groups of the workers with different degrees of occupational exposure was 14, 30, and 42 mg/man/day. With the exception of the excretion of DDA and the occurrence of a few cases of minor irritation of the skin and eyes, no correlation was found between any abnormality and exposure to the insecticide. Since very large doses of DDT injure the nervous system and liver of experimental animals, special attention was given to a complete neurological examination and to laboratory tests for liver function. Although a few abnormalities were revealed, none related to DDT were detected.



Laws et al. (1967) studied 35 men employed for 11 to 19 years in a plant that had produced DDT continuously and exclusively since 1947 and, at the time of the study, produced six million pounds per month. Findings from medical history, physical examination, routine clinical laboratory tests, and chest x-ray film did not reveal any ill effects attributable to exposure to DDT. The overall range of storage of the sum of isomers and metabolites of DDT in the men's fat was 38 to 647 ppm as compared to an average of 8 ppm for the general population. Based on their storage of DDT in fat and excretion of DDA in urine it was estimated that the average daily intake of DDT by the 20 men with high occupational exposure was 17.5 to 18 mg/man/day as compared to an average of 0.028 mg/man/day now found for the general population. There was significant correlation ( $r = + 0.64$ ) between the concentration of total DDT-related material in the fat and serum of the workers. The concentration in fat averaged 338 times greater than that in serum -- a factor about three times greater than that for people without occupational exposure. Compared to people in the general population, workers were found to store a smaller proportion of DDT-related material in the form of DDE; the difference was shown to be related chiefly to intensity rather than duration of exposure. DDE is relatively much less important and DDA much more important as excretory products in occupationally exposed men than in men of the general population.

It has been known for several years that substantial doses of DDT and several other chlorinated hydrocarbon insecticides stimulate the microsomal enzymes of the liver. This property of DDT was put to practical use in treating a patient with familial, nonhemolytic, unconjugated jaundice, as described above. It was, therefore, entirely expected that persons with occupational exposure to a variety of pesticides would be able to metabolize a test drug (antipyrin) more rapidly on the average than persons without occupational exposure are able to do. However, the change was not one of significantly increasing the fastest normal rate but of bringing all the workers up to this high normal level. There was no indication that the change had any effect one way or the other on their health (Kolmodin, 1969).

#### Laboratory Findings and Pathology

Table 2 summarizes information on the levels of DDT and its metabolites found in the general population, workers, and those fatally poisoned by the compound. This information is of use in differential diagnosis.

Ordinary clinical laboratory values are normal in persons with prolonged, intensive exposure to DDT whether investigational (Hayes *et al.*, 1956; 1961) or occupational in origin (Ortelce *et al.*, 1958; Laws *et al.*, 1967). In fact, clinical laboratory values may be normal in the presence of overt poisoning and such changes as do occur are not diagnostic

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TABLE 2

Analytical Values for DDT in the General Population of the United States, in Exposed Workers, and in Persons Killed by the Compound. No Values are Available from Patients who Survived.

Sample	Compound	General Pop. (ppm)	Workers (ppm)	Lead (ppm)
Fat except as noted	p,p'-DDT	0.09 - 4.97	18.12 - 283.83	19-36 H, K and L
	p,p'-DDE	0.48 - 21.17	16.48 - 319.32	
Blood	p,p'-DDT	0.0008 - 0.0450	0.0271 - 0.9955	
	p,p'-DDE	0.0024 - 0.0416	0.0315 - 0.8546	
Urine	p,p'-DDT	0.0018 - 0.0138	0.0023 - 0.0238	
	p,p'-DDE	0.0114 - 0.0285	0.0133 - 0.0371	
	p,p'-DDA	NF	0.01 - 2.67	

H = heart; K = kidney; L = liver; NF = looked for but not found.

(Volbinger, 1947-a; 1947-b). For example, fluid imbalance may occur if vomiting is profuse, but the reaction is nonspecific.

Effects of DDT on the General Population. - The only demonstrated effects of DDT on the general population are the storage of the compound and some of its derivatives in the tissues and their excretion in the urine and possibly the feces. The facts have been reviewed and tabulated in detail (Hayes, 1966). Briefly, DDT and some of its derivatives are found in all tissues of the body of all or nearly all persons in the population. The concentration is higher in tissues that are high in neutral fat. Thus, for people in the general population, the concentration of DDT-related compounds in adipose tissue is 100 or more times greater than their concentration in plasma (Laws et al., 1967). However, in spite of this great difference, sufficiently sensitive methods have demonstrated DDT in all tissues including the fetus and in all body fluids, including human milk. These relationships are exactly what would be predicted from what is known of the storage of drugs and other compounds. Actual chemical demonstration of the distribution of DDT has been established for several years. Thus its occurrence was first reported in human tissue in 1948 (Howell), in the general population in 1951 (Laug et al.), in the human fetus in 1962 (Dencs), and in human milk in 1951 (Laug et al.).

There is extensive evidence that the amount of DDT and related material in the general diet has decreased as the use of DDT in this

country has decreased, especially its use on forage. During the early 1950's total DDT-related intake was approximately 0.283 mg/man/day and that for p,p'-DDT was 0.178 mg/man/day (Walker et al., 1954). The average total intake based on a very large number of samples collected in different parts of the country during 1964-1967 was 0.063 mg/man/day and that for p,p'-DDT was 0.028 mg/man/day (Duggan, 1968). The decreased use of DDT would lead one to expect a gradual decrease in the storage of DDT and related material in human fat. Because only a few samples of fat were collected in the early studies of human tissue, there is some statistical uncertainty whether the decrease in storage that has been observed is real or whether it merely reflects variation due to sampling. In any event, the average storage level of total DDT-equivalent material is now 7.67 ppm and that for p,p'-DDT is 1.46 ppm. These averages are based on slightly over 3,000 samples collected during the first half of 1968. The number of samples involved in this particular study is much greater than the sum of all of the samples used in early studies. The best available values for concentrations in serum are 0.014 ppm for total DDT-equivalent and 0.003 ppm for p,p'-DDT. It is of interest to compare the latter value with that of 0.018 ppm, the average concentration of lead in the blood of people in the general population (Goldwater and Hoover, 1967).

Storage and Excretion of DDT Following High Dosage. - In a study of volunteers who received DDT at rates of 0, 3.5, and 35 mg/man/day, the average intakes resulting from dosing and from traces of DDT in food were 0.0025, 0.05 and 0.5 mg/kg/day. The storage of DDT was proportional to dosage, but there was an unexplained difference in the storage of recrystallized and of technical DDT. For example, following dosing for 12 months, the pure material was stored in fat at an average concentration of 340 ppm, but the technical material was stored at an average of only 234 ppm. The difference was statistically significant for the 3.5 mg/man/day doses given for 3 to 6 and for 7 to 13 months. The difference was significant for the 35 mg/man/day doses after 7 to 19 months of dosing but not after only 3 to 6 months.

Men who ate recrystallized DDT showed a definite increase in the absolute amount of DDE stored. After six months at a dosage of 35 mm/man/day, 8 men showed an average DDE storage of  $32.6 \pm 7.0$  ppm as compared to  $12.3 \pm 1.5$  ppm for the same individuals upon entering the investigation. There was a further increase of DDE storage as exposure progressed. However, DDT was stored in so much greater concentrations that the relative storage of DDE decreased sharply. Thus, after six months at a dosage of 35 mm/man/day, 8 men stored only 14% of their total DDT-derived material in the form of DDE as compared to 65% for the same persons at the beginning of the investigation.

The storage of DDE by men who ate technical DDT presented a different picture. Until 18 months after exposure, there was no clear evidence that these men stored any more DDE after exposure than they did before. However, at 18 months the only 3 samples available showed DDE concentrations ranging from 28 to 85 ppm, all substantially above general population levels. Thus, both the total amount stored and the rate at which DDT converted to DDE served to distinguish the metabolism of p,p'-DDT and technical DDT in man.

The urinary excretion of DDA was found proportional to the dosage of DDT. It was possible to account for a substantial proportion of the DDT administered to volunteers in terms of DDA excretion in the urine (Hayes et al., 1956).

In a second study, the volunteers received the same doses used in the first study. Again, storage of DDT was proportional to dosage. Although, in this instance, the storage of technical DDT tended to be slightly less than that of p,p'-DDT, in no instance was the difference significant. The real but very gradual accumulation of DDE was confirmed.

A steady state of storage was approached later in the second study (18.8 to 21.5 months) than in the earlier one (about 12 months). The second study was superior in that more men were studied for a longer period but inferior in that dosage was less regular. Because of the latter difficulty it seems impossible to decide whether 12 months



or 21.5 months is a more valid estimate of the time necessary for people to approach a steady state of storage when intake is uninterrupted and unvarying in amount. It is interesting that the storage levels eventually reached at the same dosage in the two studies were statistically indistinguishable in most instances (see Table 3).

When dosing was started, the urinary excretion of DDA increased rapidly at first and then more gradually until a steady state was reached in 6 to 8 months in different groups of men. The greater storage of recrystallized DDT was matched by lesser excretion; during the steady state the average urinary concentration of DDA derived from recrystallized DDT was 1.88 ppm, while that from technical DDT was 2.90 ppm. During the latter part of the dosing period, it was possible in the two groups receiving recrystallized and technical DDT at the rate of 35 mg/man/day to account for an average of 13% and 16%, respectively, of the daily dose in terms of urinary DDA. The excretion of DDA was relatively constant in each individual, but marked differences were observed between men receiving the same dose. For example, over a period of 48 weeks the highest rate measured for one man was 0.11 mg/hr while the lowest rate for another in the same group was 0.15 mg/hr. Their mean rates during this period were 0.081 and 0.270 mg/hr, respectively. The difference was highly significant ( $P < 0.001$ ).

DDT was lost from storage in fat slowly after dosing was stopped. The concentration remaining following 25.5 months of recovery was

TABLE 3

## Storage of DDT in Volunteers

Type of DDT	Added Dosage (mg/man/day)	Concentration of DDT*		Significance of Difference (P)
		First Study 11 Months or More (ppm)	Second Study 21.5 Months (ppm)	
Technical	0	8-17 ( 12.5 $\pm$ 4.5)	16-30 ( 22.0 $\pm$ 2.9)	> 0.1
	3.5	26-33 ( 29.8 $\pm$ 1.4)	59-76 ( 50.2 $\pm$ 5.6)	< 0.025
	35	101-367 (234 $\pm$ 21.4)	105-619 (281 $\pm$ 79.5)	> 0.4
Recrystallized	0	10		
	3.5	90		
	35	216-466 (340 $\pm$ 36.4)	129-659 (325 $\pm$ 62.2)	> 0.2

\* Range, mean, and standard error

from 32% to 36% of the maximum stored for those who had received 35 mg man/day but was 46% for those who received only 4.5 mg/man/day, indicating slower loss & lower storage levels.

Pathology. - In a case of suicide apparently involving uncomplicated DDT poisoning, autopsy revealed only congestion of the lungs and stomach (Committee on Pesticides, 1951). In the more common situation in which poisoning is produced or at least complicated by a solvent, autopsy reveals edema and hemorrhage of the lungs, especially the lower lobes. The stomach may be dilated and hemorrhagic and the upper small intestine hyperemic (Reingold and Lasky, 1947).

Discussion

Volunteers tolerated 35 mg of DDT per man per day for 21 months without any detectable effect except increased storage and excretion of the compound and its derivatives. Workers in formulating plants have tolerated approximately the same rate of absorption for as long as 6.5 years and levels of 17.5 to 18 mg/man/day for as long as 19 years. The rate of 35 mg/man/day is about 200 times the average amount (0.173 mg) ingested daily by people in the general population during the middle 1950's (Walker et al., 1954). However, this dosage is about 1250 times greater than the present average daily intake, namely, 0.028 mg (Duggan, 1962). By the same token, the dosage tolerated by workers for 19 years is about 625 times greater than the present daily intake.

In considering the future safety of workers who continue to be employed in formulating DDT, it is useful to consider the results of animal experiments. Rats withstand a daily dosage at least 10 times that of these workers without any detectable clinical effect (Fitzhugh and Nelson, 1947; Ortega et al., 1956), although minimal reversible tissue change may be present (Ortega et al., 1956). Dogs (Lorenson, 1952) and monkeys (Durham et al., 1953) also withstand a daily dosage 10 times greater than that of the workers, but they do not show the tissue changes, which seem to be peculiar to rats. Since workers have tolerated high dosages of DDT for over a fifth of a lifetime without detectable harm and since animals withstand even larger dosages for an entire lifetime without injury, there is good reason to predict the continuing safety of the workers.

One can use the experience already gained by workers to predict the future safety of the general population in relation to DDT. It has been shown for at least two animal species that toxicity resulting from a lifetime of exposure is seldom very different from toxicity resulting from 90 days of exposure at the same dosage rate (Weil and McCullister, 1963). The largest factor of difference observed was 20. Ninety days constitute about one-eighth of the life-span of a rat. Many workers have now been exposed to DDT for much more than one-fifth of their life-span. Since they have not suffered detectable harm, it seems most unlikely that the general population will be harmed by dosages 200 to 1250 times smaller than those to which the workers are exposed.

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1. *Phragmites australis* (Cav.) Trin. ex Steud.

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■ **IBM**

AMERICAN CEMENT CO., INC.

[illegible]

The toxicity of 1,2,3,4-tetrahydro-1H-pyridine of 1935 to rats and mice has been studied extensively, and there is a considerable wealth of information in the literature. However, such work indicates that investigations of the acute toxicity of the compound to man are limited to a few

### Examination of Workers

A total of 40 men employed by three firms engaged in the manufacture and/or formulation of DDT were examined. Information concerning their ages, length of

From the Center of Health and a Center, Bureau of State Services, Public Health Service, U. S. Department of Health, Education, and Welfare, Sacramento, Cal. Present address: Department of Neurology, Albany Medical College, Albany Hospital, Albany, N. Y.

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## A. M. A. ARCHIVES OF INDUSTRIAL HEALTH

TABLE 1. Information Concerning Men Exposed After Prolonged Occupational Exposure to DDT

No.	Age	Exposure Rating of Worker to DDT			Type of Exposure	Amount Exposure			Urinary DDA, 1958, 1959
		Yr.	Wt/Yr.	Hr/Wk.		Exposure Rating	Exposure Rating	Exposure Rating	
1	42	8	15	40	Tech.	100	400	1000	0.12
2	20	1.4	25	40	Inst.	50	400	1000	0.29
3	31	8	25	40	{ Tech. Dust	100	400	1000	0.12
4	42	5	25	40	Dust	50	400	1000	0.58
5	42	2	15	40	Dust	50	400	1000	0.75
6	34	6	25	40	Dust	50	400	1000	0.25
7	28	0.4	20	40	Tech.	100	400	1000	0.40
8	35	6	15	40	{ Tech. Dust	100	400	1000	0.50
9	30	5	15	40	Dust	50	400	1000	0.54
10	30	6	18	40	Dust	50	400	1000	0.48
11	43	1.5	35	40	WWP	200	100	1000	0.10
12	47	3	45	40	WWP	200	100	1000	0.21
13	31	3	15	40	WWP	200	100	1000	0.42
14	34	3	25	40	Tech.	100	100	1000	0.47
15	36	2.5	50	54	WWP	200	100	1000	0.91
16	27	3	50	40	WWP	200	100	1000	0.51
17	30	1.5	32	40	WWP	200	100	1000	0.57
18	48	2	35	40	WWP	200	100	1000	1.2
19	52	2	45	40	Tech.	100	100	1000	0.64
20	32	3	50	20	{ WWP Tech.	75	100	1000	3.72
21	30	1	50	10	Tech.	100	200	1000	2.72
22	32	6	50	40	Tech.	100	400	1000	2.40
23	25	2	50	40	Tech.	100	400	1000	1.19
24	35	2	20	9	Tech.	100	100	1000	1.77
25	42	6	50	40	Tech.	100	500	1000	2.61
26	33	4	50	45	Tech.	100	200	1000	7.56
27	31	6	50	45	Tech.	100	200	1000	0.65
28	27	6	50	40	Tech.	100	300	1000	0.68
29	23	5	50	40	Tech.	100	200	1000	1.25
30	31	7.5	50	40	Tech.	100	200	1000	0.58
31	35	3	50	40	Tech.	100	200	1000	1.00
32	34	0.5	25	24	Tech.	100	200	1000	1.57
33	29	6	50	40	Tech.	100	200	1000	2.58
34	34	5	50	10	Tech.	100	100	1000	0.17
35	37	0.5	50	40	Tech.	100	200	1000	3.22
36	36	2	50	40	Tech.	100	300	1000	2.48
37	34	1.5	50	40	Tech.	100	200	1000	0.51
38	25	3	50	40	Tech.	100	300	1000	3.42
39	27	2	50	40	Tech.	100	200	1000	2.07
40	25	4.3	50	40	Tech.	100	200	1000	1.77

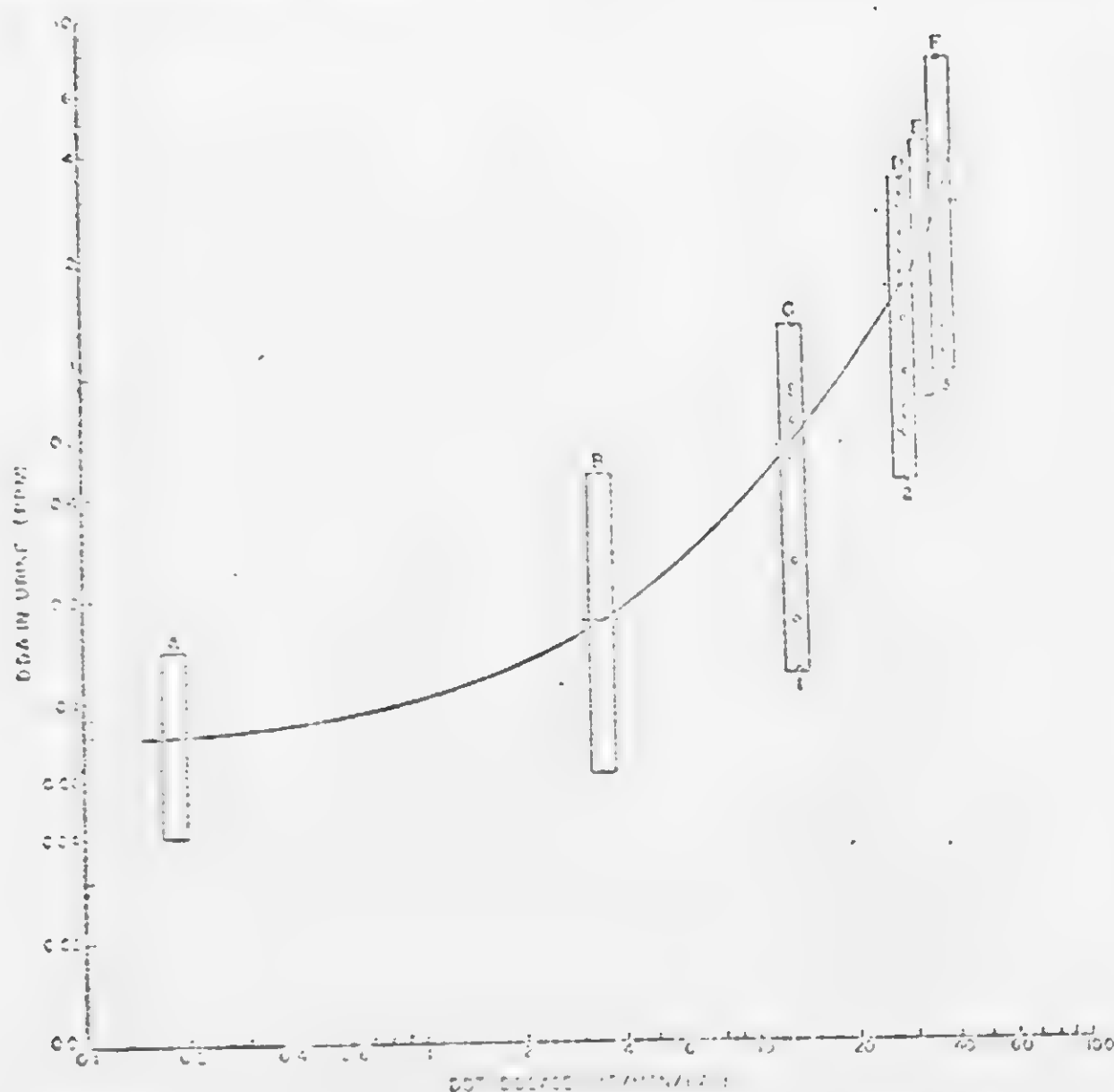
\* Tech. = Technical; WWP = water wettable powder.  
† No required exposure but some incidental exposure.

exposure, amount and type of exposure, job description, exposure rating, and urinary excretion of DDA is summarized in Table 1. The exposure rating (1=slight; 2=moderate; 3=heavy) was based on observations by the author of the men at their jobs, and also on an estimate by the men and by their superiors as to the degree of their exposure. (Good correlation was noted between this subjective estimation of exposure and the objective results of urinary DDA concentration. See Figure.)

Subjects 1-10 were employed by a formulating company that processes 1,000,000-1,250,000 lb. of 50% DDT per year. These men were also exposed to other commonly used chlorinated hydrocarbon insecticides, organic phosphorus insecticides, lead, arsenic, sulfur, and copper compounds.

Subjects 11-20 were employed by another formulating company and these men had a broad spectrum of exposure similar to that of the first 10, except that they were not exposed to organic phosphorus insecticides.

# PROLONGED EXPOSURE TO AEROSOLIZED DDT



SAVANNAH, GA - SEPT 1957

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Graph showing the relationship between the dosage of DDT (bars A, B, C, D, and E) and the body weight of the subjects. The dosage of DDT is expressed in mg/kg/day. In bars C, D, and E, the dosage is expressed in terms of the actual exposure, the individual values are shown.

Subjects 21-49 were employed by a firm engaged in the manufacture of DDT with an annual production rate of around 25,000,000 lb. of the technical product. These men had no exposure to other materials, except Numbers 25, 28, and 30, who had contact with benzene hexachloride (BHC), toxaphene, and sulfur from 1949 to 1952. Number 30 had little direct contact with DDT in recent years. He did, however, have a heavy exposure to chlorine,

ethyl alcohol, monochlorobenzene, and fuming sulfuric acid.

Exposure of all men was mainly dermal and respiratory, although most of the men were judged to have a small oral exposure as a result of smoking on the job and the settling out of dust in the mouth. No protective clothing or respirators were used by the men while working with DDT. A few wore safety goggles and gloves while handling molten DDT and in areas where

## A. M. A. ARCHIVES OF INDUSTRIAL HEALTH

TABLE 2—Summary of All Blood Tests in 40 Exposed and 40 Unexposed Men

No.	WBC per		Hemoglobin	Hematocrit	Erythrocyte	Platelet	Comment
	mm <sup>3</sup>	mm <sup>3</sup>					
2	5,200	29	0	53	2	1	Polycythemia, moderate
5	10,000	74	6	23	6	6	Very high WBC, moderate polycythemia
9	10,000	80	6	12	1	6	High WBC, moderate polycythemia
10	10,000	65	6	22	3	6	High WBC, moderate polycythemia
14	15,000	76	7	10	2	6	High WBC, moderate polycythemia
19	9,000	33	9	57	6	6	High WBC, moderate polycythemia
23	12,000	61	0	29	6	1	High WBC, moderate polycythemia
25	14,000	70	5	21	6	1	High WBC, moderate polycythemia
28	7,000	59	0	49	7	1	High WBC, moderate polycythemia
29	5,000	25	0	45	10	0	High WBC, moderate polycythemia
31	15,000	65	6	27	2	6	High WBC, moderate polycythemia
35	6,000	44	0	42	9	0	High WBC, moderate polycythemia
40	11,000	70	3	22	6	0	High WBC, moderate polycythemia

chips were flying out of the grinders. Dermal exposure was very heavy; many of the men examined were coated with a heavy layer of concentrated DDT dust. All men included in the study, with the partial exception of Number 30, had had recent exposures.

The clinical and laboratory studies included (1) complete medical history, using the Cornell Medical Index (C. M. I.) Health Questionnaire; (2) physical and neurological examination; (3) hemoglobin (Haden-Hausser hemoglobinometer); (4) white blood count and differential; (5) sulfobromophthalalein test (dose of 5 mg/kg. and blood specimen after 45 minutes); (6) plasma and erythrocyte cholinesterase (method of Michel<sup>12</sup>); (7) urinary DDA excretion (method of Cueto et al.<sup>13</sup>).

The C. M. I. was utilized because it is complete and well standardized, promotes uniformity in history taking, and reduces the probability that the examiner may bias the data. The results are readily tabulated, and the method has been proved reliable and adapted for making surveys of this type.<sup>14-17</sup> Multiple histories may be taken at the same time, thereby minimizing the time workers are kept away from their jobs by medical study. The men were questioned in detail on "yes" replies on the questionnaire, and appropriate notations were made.

Cholinesterase determinations served more than one purpose. Subjects 1-10 had exposure to cholinesterase-inhibiting organ-

ic phosphorus insecticides, and cholinesterase determinations are a sensitive measure of absorption of these compounds. Voths et al.<sup>18</sup> have demonstrated that plasma cholinesterase is a sensitive and reliable liver function test. Grever and his associates<sup>19</sup> and Ball and Kaye<sup>20</sup> have reported elevation of plasma esterase levels following acute and chronic dosing of rats with several chlorinated hydrocarbon insecticides. DDT was given as a single dose at the rate of 125 mg/kg.<sup>20</sup> Hence, in Subjects 11-40, and especially in Subjects 21-40, whose exposure was both to DDT, cholinesterase determinations were used as a liver function test and as a check for the effects reported by Grever, Ball, and their colleagues.

Unfortunately, it was not practical to collect urine specimens during a carefully measured period of several hours. It was necessary, therefore, to express the results of DDA analysis in terms of concentration

TABLE 3—Plasma Cholinesterase Levels of Unexposed Population and of Exposure Groups

Population	No. Men	Cholinesterase (Apt/1Hr.)	
		Range	Mean and S. E.
Unexposed	43	0.60-1.43	0.89±0.028
Group 1	10	0.45-0.94	0.67±0.041
Group 2	9	0.60-1.19	0.85±0.062
Group 3	19	0.61-1.37	0.95±0.047





upper and lower lids bilaterally, which he believed to be accounted with working in areas having a high concentration of DDT dust. This man was one of the three giving a history of a skin rash on the C. M. I. With the exception of his dermatitis, no correlation between exposure to DDT and the number of abnormal findings or their distribution by system was found.

**Neurological Examination.**—Five men had a partial hearing loss. In each case a history of ear infection, evidence of damage to the middle ear on otoscopic examination, or both were obtained. Three men had minor ocular muscle imbalance (i. e., strabismus and lack of convergence) known to have been present since childhood in each instance. Three men had very hyperactive but bilaterally equal deep tendon reflexes; however, this is not infrequently observed in "normal" neurological examination. Five men had slight tremor of the outstretched hands at rest. However, high standards for normal were used in these neurological examinations and in all probability these five men were just examples of "normal" nervousness frequently encountered in first examinations. None of the men in whom tremor or hyperactive reflexes were recorded had any evidence of central nervous system hyperexcitability, and all other tests of gait, coordination, and cerebellar function were normal. One man, Number 25, had a history strongly suggestive of a herniated nucleus pulposus, and was found to have moderate limitation of spinal flexion and an area of hypalgesia on the posterolateral aspect of the right thigh and buttocks. No reflex changes were detected. Subject 31 had a mild left facial weakness, apparently a complication of a severe case of mumps (which also produced a severe orchitis) 2.5 years previously.

No neurological findings related to DDT exposure were detected.

**Laboratory Findings.**—All the men had normal hemoglobin. The range was 12.0–15.0 gm/100 ml, and the mean 13.7 gm/100 ml. The white cell counts and differential

count were normal except in those cases summarized in Table 2. All of the men showed less than 5% retention of white blood cells after 45 minutes.

The plasma cholinesterase values of the exposure groups and of a group of age-matched men are shown in Table 3. From an analysis of variance it was found that Group 1 was the only group with values significantly different from those of the unexposed population. It is reasonable to conclude that the slight depletion of plasma levels in Group 1 was caused by their exposure to organic phosphorus insecticides. However, the depletion was so small in each instance that no value below the full range of normal was found. Analysis of variance of the plasma cholinesterase values disclosed no significant variation in the level of men exposed to high DDT concentrations for prolonged periods as compared with the level for unexposed persons. This result certainly does not exclude the possibility that men would show a statistically significant increase in plasma cholinesterase levels if they received doses of DDT comparable to the extremely large doses which produced this effect in rats.

The Figure permits a comparison of the urinary DDA values found for the three exposure groups in this study with the values found for men who had received known daily oral doses of DDT for one year.

Investigations reported elsewhere<sup>22</sup> indicate that the rate of excretion increases with increased concentration of stored material which, under conditions of equilibrium, is proportional to dosage. This relationship is reflected in the form of the graph shown in the Figure. It may be estimated from the graph that exposure Groups 1, 2, and 3 received average absorbed doses equivalent to oral doses of approximately 14, 30, and 42 mg/man/day, respectively, although the dosage of the individual workers varied appreciably around the corresponding mean. Thus, the average absorbed dose of Groups 2 and 3 combined was about 200 times the average dose (0.184 mg/man/day)<sup>4</sup> ob-



the effect of the general level of the diet on the end products.

### Summary and Conclusions

Over a period of 10 months, 100 subjects were studied in a metabolic laboratory. The subjects were divided into two groups: a control group and a group receiving a low-protein diet. The control group received a diet containing 100 g of protein per day, while the low-protein group received a diet containing 50 g of protein per day. The subjects were studied for 10 days each, during which time their protein, fat, and carbohydrate metabolism were measured. The results of the study are summarized in the following table:

Group	Protein (g/day)	Fat (g/day)	Carbohydrate (g/day)	Protein Metabolism (g/day)	Fat Metabolism (g/day)	Carbohydrate Metabolism (g/day)
Control	100	100	100	100	100	100
Low-Protein	50	100	100	50	100	100

The results of the study show that the low-protein diet had a significant effect on the subjects' protein metabolism, but had no significant effect on their fat or carbohydrate metabolism. The subjects on the low-protein diet excreted significantly less nitrogen in their urine than the subjects on the control diet. This suggests that the low-protein diet was effective in reducing the subjects' protein intake and, consequently, their protein metabolism.

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The Johns Hopkins Hospital  
615 North Wolfe Street  
Baltimore, Md. 21205

AFFIDAVIT

1. My name is: Edward R. Laws, Jr., M.D.
2. My residence is: 1517 McMillan Street, Baltimore, Md. 21205
3. My position is: Staff Physician, The Johns Hopkins Hospital and The Johns Hopkins University School of Medicine, Baltimore, Md. 21205.
4. My qualifications are: Six years of research in the toxicology of pesticides, specifically the toxicology of DDT.

5. Statement: In 1966 I personally conducted a research study of men who were occupationally exposed to high levels of DDT. (See attached reprint, Laws, et. al., Arch. Env. Health, 19: 766 - 775, 1967). An intensive study of 35 men exposed to high levels of DDT (about 18 mg. per man per day) for 5 to 10 years failed to reveal any untoward effect on their health. Further, a review of 1360 employees of exposure of the total pool of workers at a DDT manufacturing plant failed to reveal a single case of cancer developing in the workers.

On the basis of these findings, I do not feel that exposure to DDT at the recommended and current levels in the general population represents any in itself threat to the health of humans, nor is there evidence to suggest that DDT at such levels has a carcinogenic effect.

For the past year I personally have been conducting a research experiment on the effects of DDT on an experimental cancer in mice (See attached interim report).

Mice exposed to 5.5 mg./Kg./ day of DDT in their diet are less prone to develop the transplanted tumor and live longer with the tumor than do control animals who receive no DDT. Further, we have been unable to produce tumors by direct application of DDT in the

subdural space of these mice, while such applications of methyl-  
cholanthrene regularly produce tumor.

These studies indicate that under the  
given experimental conditions, MCF has an inhibitory effect on the  
growth and development of at least one experimental cancer.

Signed:

Edward R. Edwards, MD

Baltimore, Maryland  
June 15, 1970

Notarized:

William D. Applefield - 6/15/70

Expires:

7/1/74

THE EFFECT OF FEE ON AN EXPERIMENTAL BRAIN  
TUMOR IN MICE

by

Edward R. Laws, Jr., M.D.

Division of Neurological Surgery

The Johns Hopkins University School of Medicine

Baltimore, Md.

In the consideration of the relationship between DDT and cancer in humans, fragmentary evidence has intermittently been presented to support the claim that DDT is a carcinogen or that DDT has had a favorable effect on some human cancers. None of the evidence is conclusive, and few studies have been accomplished or designed specifically to test the hypothesis that DDT either produces or inhibits the development or growth of cancer, particularly in humans.

An intensive study of workers exposed to high occupational levels of DDT (Laws et. al., 1967) demonstrated an absence of cancer in the medical histories and records of some 1300 man-years of workers' experience in a high-exposure situation. One interpretation of their findings is that exposure to DDT has inhibited the development of neoplasms in the population group studied. It was decided to test this hypothesis in a laboratory situation using a specific animal model, an experimental, chemical-carcinogen-induced brain tumor, readily available and well investigated by a variety of independent workers.

#### Material and Methods

The experimental animal in the C<sub>57</sub>B<sub>1</sub> male mouse, obtained at 5 weeks of age at the onset of the experiment and maintained from then on appropriate diet.

Control animals received a diet of laboratory chow.

Experimental animals received a diet formulated with DDT in laboratory chow at a rate of 33.3 mg. DDT per Kg chow.

The calculated daily dose of DDT per mouse is 5.5 mg/kg/day, approximately one quarter of the 90-day LD50 as calculated by Hayes (1967), and enough to cause transient symptoms of "nervousness" but no deaths or other disability among the experimental group.

DDT used in the formulation was Superfine Technical DDT analyzed as: p-p-DDT-78%; o-p-DDT-20.5%; trace impurities-1.5%.

The tumor was a methyl-cholanthrene induced opendymoblastoma developed by Dr. Harry Zimmerman (Ogata and Zimmerman, 1959), and obtained from his laboratory. This tumor was developed by the subcutaneous implantation of methyl-cholanthrene crystals and may be transmitted essentially unchanged by subcutaneous implantation from one mouse to another. In this technique, a 2/1 saline to tumor cell homogenate is made and 0.1 cc is injected subcutaneously in the interscapular region. Visible tumors develop in 10-12 days, and relentless growth resulting in the eventual death of the animal usually occurs.

Autopsies have been done on all animals dying in the course of the experiment, and histological examinations made of tumors, brains, and appropriate other major organs.

The design of the experiment is such that each week a stock colony mouse bearing a fresh virulent tumor is sacrificed, the tumor homogenized and tumor injections performed as above into groups of 4-6 control and experimental animals. The animals are then followed for development of the tumor, longevity and autopsy findings.

After 6 months the experimental tumor was transmitted through the brain for one generation and then returned to the usual subcutaneous position. This procedure ordinarily increases the virulence and growth characteristics of the tumor.



## Results

While much of the experiment is still in progress, certain of the results are quite evident. When one examines longevity statistics for the first 150 days of the study, 60 animals in each group may be compared. The mean longevity for the control animals is 46 days and all 60 animals developed tumors and all 60 died as a result of the tumors. The mean longevity for the animals on diet containing DDT was 83 days with 22 of the 60 animals never developing a tumor and the remainder developing a slow growing tumor which eventually killed the animals.

This pattern is continuing in the animals currently in the ongoing phase of the experiment.

## Discussion

It is clear that under the given experimental conditions, DDT has an inhibitory effect on the development of growth of this experimental tumor. Several mechanisms may be postulated. It is possible that DDT has a specific deleterious effect on the metabolism of the tumor. Studies in our laboratory indicate that DDT in a concentration of 32 mM will inhibit Sodium-Potassium-stimulated ATPase in this tumor. Another mechanism may arise from the ability of DDT to stimulate liver microsomal enzyme systems which may in turn interfere with carcinogenic or cancer sustaining substances in the blood. Finally, DDT may have a general subliminally toxic effect on the whole animal so that he no longer is an ideal host for the transplanted tumor.

While these data are still incomplete and apply only to a specific experimental consideration, they support the hypothesis that DDT has an inhibitory effect on cancer. This hypothesis should be tested on a larger scale, using other animal models and other forms of cancer.

Table I

The Effect of DDT on Transmission of an Experimental Ependyoblastoma

	Control Diet	Experimental Diet (DDT)
No. of animals transplanted	60	60
No. developing tumor	59	38
% Tumor "take"	98	63

Table II

Longevity of Animals with Ependyoblastoma after 150 Days

	Control Diet	Experimental Diet
No. of animals	60	60
Mean longevity in days	46	83

Abstract: The atomic weight of oxygen has been determined by a series of experiments. The results are given by the following table. The atomic weight of oxygen appears to be constant within the limits of experimental error.

In May 1969, the International Union of Pure and Applied Chemistry (IUPAC) adopted the value 15.9994 for the atomic weight of oxygen. This value is based on the results of a series of experiments conducted by a number of scientists. The results of these experiments are given in the following table. The atomic weight of oxygen appears to be constant within the limits of experimental error.

Table 1. Atomic Weight of Oxygen (1907 to 1970)				
Table	Date	D. W. Brewer	Atomic Weight of Oxygen (1907 to 1970)	
			Value	S.D.
1	1907	15.847	15.847	±0.0005
2	1908	15.847	15.847	±0.0005
3	1909	15.847	15.847	±0.0005
4	1910	15.847	15.847	±0.0005
5	1911	15.847	15.847	±0.0005
6	1912	15.847	15.847	±0.0005
7	1913	15.847	15.847	±0.0005
8	1914	15.847	15.847	±0.0005
9	1915	15.847	15.847	±0.0005
10	1916	15.847	15.847	±0.0005
11	1917	15.847	15.847	±0.0005
12	1918	15.847	15.847	±0.0005
13	1919	15.847	15.847	±0.0005
14	1920	15.847	15.847	±0.0005
15	1921	15.847	15.847	±0.0005
16	1922	15.847	15.847	±0.0005
17	1923	15.847	15.847	±0.0005
18	1924	15.847	15.847	±0.0005
19	1925	15.847	15.847	±0.0005
20	1926	15.847	15.847	±0.0005
21	1927	15.847	15.847	±0.0005
22	1928	15.847	15.847	±0.0005
23	1929	15.847	15.847	±0.0005
24	1930	15.847	15.847	±0.0005
25	1931	15.847	15.847	±0.0005
26	1932	15.847	15.847	±0.0005
27	1933	15.847	15.847	±0.0005
28	1934	15.847	15.847	±0.0005
29	1935	15.847	15.847	±0.0005
30	1936	15.847	15.847	±0.0005
31	1937	15.847	15.847	±0.0005
32	1938	15.847	15.847	±0.0005
33	1939	15.847	15.847	±0.0005
34	1940	15.847	15.847	±0.0005
35	1941	15.847	15.847	±0.0005
36	1942	15.847	15.847	±0.0005
37	1943	15.847	15.847	±0.0005
38	1944	15.847	15.847	±0.0005
39	1945	15.847	15.847	±0.0005
40	1946	15.847	15.847	±0.0005
41	1947	15.847	15.847	±0.0005
42	1948	15.847	15.847	±0.0005
43	1949	15.847	15.847	±0.0005
44	1950	15.847	15.847	±0.0005
45	1951	15.847	15.847	±0.0005
46	1952	15.847	15.847	±0.0005
47	1953	15.847	15.847	±0.0005
48	1954	15.847	15.847	±0.0005
49	1955	15.847	15.847	±0.0005
50	1956	15.847	15.847	±0.0005
51	1957	15.847	15.847	±0.0005
52	1958	15.847	15.847	±0.0005
53	1959	15.847	15.847	±0.0005
54	1960	15.847	15.847	±0.0005
55	1961	15.847	15.847	±0.0005
56	1962	15.847	15.847	±0.0005
57	1963	15.847	15.847	±0.0005
58	1964	15.847	15.847	±0.0005
59	1965	15.847	15.847	±0.0005
60	1966	15.847	15.847	±0.0005
61	1967	15.847	15.847	±0.0005
62	1968	15.847	15.847	±0.0005
63	1969	15.847	15.847	±0.0005
64	1970	15.847	15.847	±0.0005
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown
Unknown	Unknown	Unknown	Unknown	Unknown

these original sources of their pollution, thereby raising the concentration of oxygen in the earth's atmosphere. In the year 1967, 0.05 percent of the atmospheric oxygen is removed by photosynthesis of which over 60 percent derives from the oceans. It must be noted that the authors found themselves in the position that the extent of the problem is far accessible to them is insufficient to demonstrate whether or not the problem is serious now or in the foreseeable future."

In response to Parker's request, the Environmental Science Services Administration and the National Science Foundation collected several samples during 1967 and 1968 by the oceanographic vessels *Oceanographer* and *Likania*, both over the continental shelf and open ocean. The Analytical Chemistry Division of the National Bureau of Standards developed the method of analysis and determined the oxygen content.

Samples were collected, after drying, in one-liter evacuated stainless steel flasks. Previous experience had shown

that samples stored in similar containers suffered no detectable loss of oxygen after 10 days for long periods of time, even at relatively low temperatures. The oxygen content of the samples was determined by repeated comparison with a box of certified oxygen content with the use of a modified Beckman oxygen analyzer (1). The oxygen content of the comparison standards were derived from a primary standard which was determined gravimetrically (2) as 20.9459 percent by volume with an accuracy of 1 standard deviation of  $\pm 0.0005$  percent by volume. The mean value of the primary standard and its uncertainty were obtained from 33 results derived from 36 determinations; all 36 results gave the same mean value but a standard deviation of  $\pm 0.0005$  percent by volume.

Analytical results, sampling sites, and dates are given in Table 1. Three portions were taken from each sample and each measured at least ten times; the standard deviations for the samples in Table 1 derive from the set of three mean values. The averages for all 78

samples is 20.9458 percent by volume of oxygen with a standard deviation of  $\pm 0.0007$  percent by volume. With one exception, 20.9427  $\pm 0.0012$  percent by volume, the larger departures from the mean are generally associated with large standard deviations, suggesting the analytical uncertainty as the source of variation. Values obtained during the second cruise days, 15 to 17 April, also average 20.9458 percent by volume but exhibit a smaller variability between samples,  $\pm 0.0005$  percent by volume, than those during the first 3 days. Increased familiarity with the instrument and its peculiarities after a thousand or so accurate measurements probably explains the reduction in variability, although other as readily explained phenomena are undoubtedly present.

The recommended value for oxygen abundance of dry air from the more reliable oceanographic analyses is 20.945 percent by volume relative to a standard with an accuracy of  $\pm 0.0005$  percent by volume. The precision or geographical variability, or both, is  $\pm 0.0005$ .

In February 1970, Hughes collected ten nearly identical samples from a relatively isolated rural site in western Maryland. The average value by the same method of analysis was found to be 20.946  $\pm 0.0018$  percent by volume. In 1967 Hughes (2) reported an abundance of 20.945 percent by volume for a sample collected in the same region.

While new measurements may shed light on any future destruction of oxygen sources by pollution, comparison of present and past observations would indicate whether or not there has been any recent degradation of atmospheric oxygen. Many of the past measurements are reported to three decimal places but Paneth (3) contends that even the second decimal place is imperfectly given. Glueckauf (4) took a less pessimistic view and quoted 20.946 percent by volume as the probable value in his 1951 survey of previous work. We do not know the absolute error in past determinations of oxygen by the volumetric-chemical method but feel that there is some confidence in the third decimal.

There are only five measurements or series of measurements of the absolute oxygen abundance in the atmosphere between 1910 and 1957-70. The first of these was an extensive investigation during 1910-12 by Benedict (5) of the air near his laboratory in Boston as well as air obtained in flasks from isolated geographical areas. There are

Table 1 (continued).

Latitude	Longitude	Date collected	Analysis performed during				
			15 to 17 April 1969		9 to 11 April 1970		
			Value	S.D.	Value	S.D.	
<i>In 1968 by the R/V. Uranian</i>							
33°30'S	126°10'E	9/8			20.9427	$\pm 0.0012$	
34°43'S	124°03'E	9/9			20.9470	$\pm 0.0030$	
35°11'S	121°28'E	9/10			20.9467	$\pm 0.0006$	
35°15'S	131°50'E	7/24	20.9460	$\pm 0.0010$			
35°15'S	137°50'E	7/31	20.9457	$\pm 0.0006$			
35°17'S	138°15'E	8/12			20.9443	$\pm 0.0021$	
35°18'S	137°43'E	10/7			20.9410	$\pm 0.0010$	
36°02'S	116°57'E	9/12			20.9453	$\pm 0.0023$	
36°02'S	116°57'E	9/12			20.9400	$\pm 0.0052$	
38°15'S	160°10'E	6/25	20.9457	$\pm 0.0006$			
38°15'S	160°10'E	6/25	20.9463	$\pm 0.0006$			
40°00'S	134°03'E	8/14			20.9480	$\pm 0.0010$	
41°52'S	117°03'E	9/14			20.9413	$\pm 0.0042$	
42°40'S	150°12'E	6/29	20.9457	$\pm 0.0006$			
43°03'S	147°27'E	6/30	20.9453	$\pm 0.0012$			
43°58'S	160°02'E	6/23	20.9457	$\pm 0.0006$			
44°42'S	145°31'E	7/1	20.9450	$\pm 0.0017$			
47°30'S	128°00'E	8/31			20.9460	$\pm 0.0017$	
47°30'S	128°00'E	8/31			20.9427	$\pm 0.0021$	
47°30'S	128°00'E	9/1			20.9470	$\pm 0.0020$	
47°30'S	128°00'E	9/1			20.9453	$\pm 0.0012$	
52°56'S	135°00'E	7/23	20.9460	$\pm 0.0010$			
53°36'S	122°30'E	9/28			20.9467	$\pm 0.0021$	
55°17'S	160°00'E	6/17	20.9463	$\pm 0.0015$			
57°00'S	160°03'E	6/16	20.9457	$\pm 0.0006$			
58°45'S	117°00'E	9/25			20.9427	$\pm 0.0081$	
59°57'S	167°53'E	6/10	20.9457	$\pm 0.0006$			
60°00'S	135°00'E	7/19	20.9463	$\pm 0.0006$			
60°00'S	135°00'E	8/24			20.9417	$\pm 0.0035$	
60°07'S	140°13'E	7/18	20.9457	$\pm 0.0006$			
60°10'S	145°03'E	7/17	20.9453	$\pm 0.0006$			
60°10'S	145°03'E	7/17	20.9457	$\pm 0.0006$			
<i>In 1970 16 kilometers west of Frederick, Maryland</i>							
39°35'N	77°32'W	2/21	20.9441	20.9439	20.9436	20.946	20.947
			20.944	20.949	20.945	20.946	20.945

doubts concerning the validity of the first sample. The second sample (10), however, was analyzed in the laboratory and found to contain 20.935 percent by volume. The third sample was a simple wash of the first sample with no loss of volume. The fourth sample was a simple wash of the first sample with no loss of volume. The fifth sample was a simple wash of the first sample with no loss of volume. The sixth sample was a simple wash of the first sample with no loss of volume. The seventh sample was a simple wash of the first sample with no loss of volume. The eighth sample was a simple wash of the first sample with no loss of volume. The ninth sample was a simple wash of the first sample with no loss of volume. The tenth sample was a simple wash of the first sample with no loss of volume. On the other hand, the first sample to have reported a value of 20.9 percent relative to the first sample of nitrogen, and the second sample of carbon dioxide, and the third sample of oxygen, were all found to be within normal limits. The fourth sample of 20.935 percent by volume was found to be within normal limits.

In 1955, Kohn and his group reported a value of 20.935 percent by volume for the first sample of air in Antarctica. This value was found to be within normal limits. The second sample of air in Antarctica was found to be within normal limits. The third sample of air in Antarctica was found to be within normal limits. The fourth sample of air in Antarctica was found to be within normal limits. The fifth sample of air in Antarctica was found to be within normal limits. The sixth sample of air in Antarctica was found to be within normal limits. The seventh sample of air in Antarctica was found to be within normal limits. The eighth sample of air in Antarctica was found to be within normal limits. The ninth sample of air in Antarctica was found to be within normal limits. The tenth sample of air in Antarctica was found to be within normal limits.

Sixthly, the first sample of air in Antarctica was found to be within normal limits. The second sample of air in Antarctica was found to be within normal limits. The third sample of air in Antarctica was found to be within normal limits. The fourth sample of air in Antarctica was found to be within normal limits. The fifth sample of air in Antarctica was found to be within normal limits. The sixth sample of air in Antarctica was found to be within normal limits. The seventh sample of air in Antarctica was found to be within normal limits. The eighth sample of air in Antarctica was found to be within normal limits. The ninth sample of air in Antarctica was found to be within normal limits. The tenth sample of air in Antarctica was found to be within normal limits.

All reliable oxygen data since 1949 fall in the range 20.945 to 20.972 percent by volume. The change in atmospheric oxygen since 1949 has been either very small or zero. It is possible that there has been a change even in the third decimal place, but a more careful assessment remains to be made. In the second decimal place, there is a little confidence in differences of the

first sample. The second sample (10), however, was analyzed in the laboratory and found to contain 20.935 percent by volume. The third sample was a simple wash of the first sample with no loss of volume. The fourth sample was a simple wash of the first sample with no loss of volume. The fifth sample was a simple wash of the first sample with no loss of volume. The sixth sample was a simple wash of the first sample with no loss of volume. The seventh sample was a simple wash of the first sample with no loss of volume. The eighth sample was a simple wash of the first sample with no loss of volume. The ninth sample was a simple wash of the first sample with no loss of volume. The tenth sample was a simple wash of the first sample with no loss of volume.

Some of the data reported by Kohn and his group in 1955 are shown in Table 1. The first sample of air in Antarctica was found to be within normal limits. The second sample of air in Antarctica was found to be within normal limits. The third sample of air in Antarctica was found to be within normal limits. The fourth sample of air in Antarctica was found to be within normal limits. The fifth sample of air in Antarctica was found to be within normal limits. The sixth sample of air in Antarctica was found to be within normal limits. The seventh sample of air in Antarctica was found to be within normal limits. The eighth sample of air in Antarctica was found to be within normal limits. The ninth sample of air in Antarctica was found to be within normal limits. The tenth sample of air in Antarctica was found to be within normal limits.

However, the 1967-70 value of oxygen in air is 20.94 percent by volume of dry air, is statistically the same as the reliable measurements from 1949; the extreme range

among reported values is 0.7 percent of volume. The first sample of air in Antarctica was found to be within normal limits. The second sample of air in Antarctica was found to be within normal limits. The third sample of air in Antarctica was found to be within normal limits. The fourth sample of air in Antarctica was found to be within normal limits. The fifth sample of air in Antarctica was found to be within normal limits. The sixth sample of air in Antarctica was found to be within normal limits. The seventh sample of air in Antarctica was found to be within normal limits. The eighth sample of air in Antarctica was found to be within normal limits. The ninth sample of air in Antarctica was found to be within normal limits. The tenth sample of air in Antarctica was found to be within normal limits.

# I. Methods

The following methods were used in the analysis of the air samples. The first sample of air in Antarctica was found to be within normal limits. The second sample of air in Antarctica was found to be within normal limits. The third sample of air in Antarctica was found to be within normal limits. The fourth sample of air in Antarctica was found to be within normal limits. The fifth sample of air in Antarctica was found to be within normal limits. The sixth sample of air in Antarctica was found to be within normal limits. The seventh sample of air in Antarctica was found to be within normal limits. The eighth sample of air in Antarctica was found to be within normal limits. The ninth sample of air in Antarctica was found to be within normal limits. The tenth sample of air in Antarctica was found to be within normal limits.

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21 April 1969

Parts I and II

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

December 1969





# Any Chemical Can Produce Cancer In Rats, Albany Scientist Claims

By ROBERTA G. MARKS  
Technical Editor

OTTAWA.—Under appropriate test conditions, any chemical can be shown to be carcinogenic in the rat, a noted researcher claimed here.

And, if someone has a chemical he wants proved carcinogenic, and will underwrite the testing cost, Dr. Leon Golberg is prepared to produce subcutaneous rat sarcomas with it.

If all compounds are potentially carcinogenic, how come some large-scale screening studies have turned up negative, non-carcinogenic agents? The researchers just didn't try hard enough, Dr. Golberg said on June 18 at the Canadian Food and Drug Directorate's symposium "Chemical

Contaminants In Foods—Hazard Or Not?"

These remarks were a preamble to Dr. Golberg's contention that some test procedures—and the "addictionist" climate in which they are being carried out—are not turning up useful information.

Dr. Golberg was specifically scornful of mere "tump counting"—the administration of a substance in, say, a two-year feeding program, followed by a search for tumors.

Unless one understands the mechanism of action in each case, he said, the production of tumors is meaningless. And the rigidity of the Delaney Amendment—which calls for immediate removal from the market of any food additive which induces cancer in

rats—leaves no room for scientific judgment, Dr. Golberg said.

The investigator is scientific director of the Institute of Experimental Pathology and Toxicology of the Albany Medical College, Albany, N.Y.

In his address, "Trace Chemical Contaminants In Food: Potential For Harm," Dr. Golberg went on to that method "only used in teratogenicity testing."

He called for all procedures of minimum tolerated dose, potential administration, and sometimes application of dimethylsulfoxide as a solvent the "height of absurdity."

Dr. Golberg pointed out that any one of a host of factors may be responsible for fetal death or resorption.

For example, he noted, in the mouse, air travel on post-conception day 12-17 is teratogenic, as is fasting for 12 hours or less at a critical stage of pregnancy. In checking over the literature, Dr. Golberg came upon another way to produce teratogenic offspring: a diet of pure German railings for one day.

Again he repeated the importance of metabolism and why the researcher must understand it. If an agent's metabolic pathway in the test animal differs radically from that in man, the experimental results are not informative unless one understands how and why they have occurred.

Dr. Golberg then took on mutagenicity. "The risk of mutagenic effects to future generations of mankind is so great and imminent that no chemical agent may be regarded as acceptable for use in the diet without being subjected to a battery of tests for mutagenicity, tests which we are told are entirely practical and sensible . . . precise, efficient and relatively inexpensive . . . practical, sensitive and relevant . . ." he said, quoting from the Mark report. "Presumably," Dr. Golberg continued, "any positive result in any one of these tests at any dose makes it necessary to consider the compound as dangerous until proved safe—though how such proof of safety can ever be believed in these circumstances is not clear." Perhaps, he said, this is why researchers are reluctant to use the tests.

"As the crowning point of the entire structure of chemical hazards, we have the tests that the phenomena of carcinogenesis, carcinogenesis and teratogenesis are so closely linked that a positive result in any one of these areas automatically requires the compound suspect on all three counts. On the other hand, should it happen that a chemical agent turns out negative in all tests applied, it remains under suspicion until such time as someone somewhere can discover an organism, devise a route of administration, or achieve a sufficiently heroic dose to produce some positive biological result. In that case, he can say, 'It's not the case,'" he concluded at the Food and Drug Directorate meeting.

In a later interview with *Time* (Continued on page 60, column 3)

## Says Rat Cancer Is Caused By Any Chemical

(Continued from page 59, col. 5)  
*Times* News. Dr. Goldberg urged that research in this government try to determine whether or not conditions of exposure for the consumer.

Studies should have limited objectives rather than broad aims, according to the Albany scientist. The various testing process should be checked at intermediate stages so that any early changes can be observed and understood. Asked for a "for instance," Dr. Goldberg said of the separate affair that the effect on production of bladder tumors in rats is the real crux of the matter. Cyclophosphamide was originally thought not to be broken down by the body. Steps should have been taken when it was learned that cyclophosphamide is metabolized and that cyclohexylamine—which causes the bladder—is a breakdown product of the chemical compound.

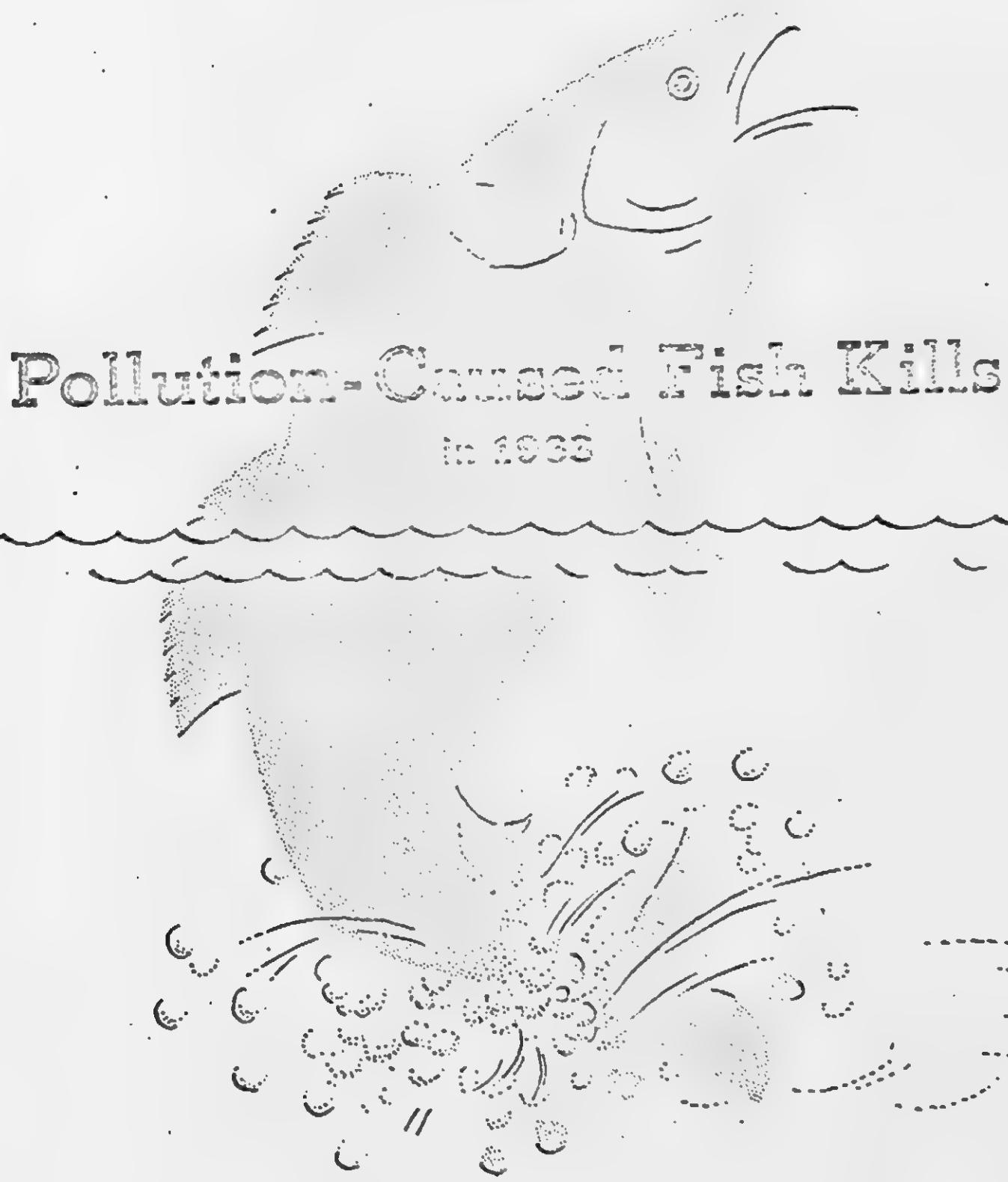
"As data develop so you must react—action, not crisis, reaction," Dr. Goldberg told *Time*. Waiting too long is as bad as acting too soon on insufficient data, the investigator said. "Neither is that nor panic is the answer."

Dr. Goldberg also pointed out that the hazards of the natural diet are not yet known. One mustn't assume that all natural foods are safe and nutritious, for the capacity for harm of natural products is unknown, he said, and certainly degree of aging and disease is due to them.

Science must determine the background data on these agents and then try to establish a dose-response relationship to learn what additional hazard is represented by incremental increases of various substances to the diet, the Albany investigator said.

Dr. Goldberg also referred to the recent yohimbine experiment (see story above), calling it a typical example of research in which people do experiments and get exactly what they expect. If you feed a yohimbine-rich product, he noted, there is no cause to be surprised when the effects of yohimbine—in this case, cataracts—become manifest, the investigator concluded.

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# Pollution-Caused Fish Kills

In 1963

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
Public Health Service

1963

TABLE 2.—Fish kill summary by source of pollution

Source of pollution	Number of reports	Reporting number of fish killed		Average size of fish <sup>1</sup>	Estimated number of fish killed		
		Number of reports	Number of fish		Total <sup>2</sup>	Game	Forage
Agricultural operations.....	81	54	500,967	6,655	761,000	192,000	579,000
Industrial operations.....	194	139	2,630,601	8,995	3,185,000	433,000	2,752,000
Municipal operations.....	60	44	914,379	6,615	1,020,000	48,000	972,000
Transportation operations.....	17	10	78,388	7,840	133,000	115,000	18,000
Other operations.....	27	15	100,912	6,725	182,000	91,000	91,000
Unknown.....	54	38	2,471,283	6,740	2,579,000	98,000	2,481,000
<b>Total.....</b>	<b>436</b>	<b>300</b>	<b>6,816,530</b>	<b>7,775</b>	<b>7,860,000</b>	<b>967,000</b>	<b>6,893,000</b>

<sup>1</sup> Averages computed after excluding 2 reports where no fish<sup>2</sup> Includes all fish killed as reported, plus the average number killed for each source applied to those reports where no actual number was given.

TABLE 3.—Summary of fish kills by operations subgroup

Source of pollution	Number of reports	Reporting number of fish		Source of pollution	Number of reports	Reporting number of fish	
		Number of reports	Number of fish			Number of reports	Number of fish
<b>Agricultural operations:</b>				<b>Municipal operations:</b>			
Insecticides, poisons, etc.....	60	37	401,415	Sewerage systems.....	50	37	904,767
Fertilizers.....	3	2	1,400	Refuse disposal.....	3	3	6,800
Manure-sludge drainage.....	21	15	158,152	Water systems.....	3	3	1,312
<b>Subtotal.....</b>	<b>84</b>	<b>54</b>	<b>560,967</b>	Power.....	4	1	1,500
<b>Industrial operations:</b>				<b>Subtotal.....</b>	<b>60</b>	<b>44</b>	<b>914,379</b>
Mining.....	16	12	330,815	<b>Transportation operations:</b>			
Food and kindred products.....	47	31	428,271	Rail.....	2	1	5,000
Paper and allied products.....	14	9	171,878	Truck.....	8	6	71,899
Chemicals.....	34	29	224,441	Barge or boat.....	1		
Petroleum.....	14	10	1,156,900	Pipeline.....	6	3	1,459
Metals.....	18	13	93,793	<b>Subtotal.....</b>	<b>17</b>	<b>10</b>	<b>78,388</b>
Other.....	24	16	136,625	<b>Other operations.....</b>	<b>27</b>	<b>15</b>	<b>100,912</b>
Combinations.....	8	5	20,650	<b>Unknown source.....</b>	<b>54</b>	<b>38</b>	<b>2,471,283</b>
Unidentified.....	19	14	127,193	<b>Total.....</b>	<b>436</b>	<b>300</b>	<b>6,816,530</b>
<b>Subtotal.....</b>	<b>194</b>	<b>139</b>	<b>2,630,601</b>				

# Pollution-Caused Fish Kills in 1964

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE • Public Health Service

Division of Water Supply and Pollution Control • Basic Data Branch • Washington, D.C. 20201



Table 4.—Summary of fish kills by operations subgroup

Source of pollution	Number of reports	Reporting number of fish		Source of pollution	Number of reports	Reporting number of fish	
		Number of reports	Number of fish			Number of reports	Number of fish
<b>Agricultural operations:</b>				<b>Municipal operations—Continued</b>			
Insecticide, poisons, etc.	93	74	191,167	Water systems	10	10	127,796
Fertilizers	5	1	67,010	Power	5	4	3,825
Manure-chase drainage	29	28	1,150,885	Other	10	8	91,495
<b>Subtotal</b>	<b>127</b>	<b>101</b>	<b>1,415,092</b>	<b>Subtotal</b>	<b>122</b>	<b>97</b>	<b>3,803,657</b>
<b>Industrial operations:</b>				<b>Transportation operations:</b>			
Mineral	20	13	2,675,917	Rail	5	5	6,475
Food and kindred products	41	33	219,556	Truck	10	8	10,733
Paper and allied products	9	8	8,601	Barge or boat	1	1	230
Chemical	26	23	525,739	Pipeline	10	4	4,733
Petroleum	26	14	517,286	<b>Subtotal</b>	<b>26</b>	<b>18</b>	<b>22,211</b>
Metallic	28	26	196,478	<b>Other operations</b>	<b>17</b>	<b>13</b>	<b>13,423</b>
Combustion	12	12	8,306,060	<b>Total</b>	<b>483</b>	<b>385</b>	<b>17,869,714</b>
Other	31	24	87,333				
<b>Subtotal</b>	<b>193</b>	<b>163</b>	<b>12,525,301</b>				
<b>Municipal operations:</b>							
Sanitary systems	96	74	3,668,226				
Refuse disposal	1	1	2,345				

1964



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# Pollution- Caused Fish Kills in 1965

## SIXTH ANNUAL REPORT

FEDERAL  
WATER  
POLLUTION  
CONTROL  
ADMINISTRATION  
Basic Data Program  
Washington, D.C. 20203

Table 4—Summary of fish kills by operations subgroup

Source of pollution	Number of reports	Reporting number of fish		Source of pollution	Number of reports	Reporting number of fish	
		Number of reports	Number of fish			Number of reports	Number of fish
Agricultural operations: Insecticides, poisons, etc., Fertilizers Manure-silage drainage Subtotal	74	64	770,557	Municipal operations: Sewerage systems Refuse disposal Water systems Power Other Subtotal	104	92	5,211,014
	4	4	2,697		7	5	17,206
	29	25	616,882		3	2	604,300
	107	93	1,390,136		2	2	620
Industrial operations: Mineral Food and kindred products Paper and allied products Chemicals Petroleum Metals Combinations Other Subtotal	35	33	295,223	Transportation operations: Rail Truck Barge or boat Pipeline Subtotal Other operations Total	135	118	3,911,604
	60	48	536,563		6	2	1,400
	15	11	494,860		12	12	108,900
	37	31	218,661		3	2	2,050
	25	17	1,516,021		6	5	197,400
	16	14	75,401		27	21	300,810
	13	10	491,681		21	19	20,941
	40	31	137,532		531	446	11,393,439
	241	195	3,763,918				



**FISH  
KILLS  
BY  
POLLUTION  
1966**

**seventh annual report**  
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION  
WASHINGTON, D.C. 20242

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TABLE 4 — Fish kill summary by operation

	TOTAL	REPORTED FISH KILLED	
SOURCE OF POLLUTANT	REPORTS	REPORTS	FISH
<hr/>			
Agricultural			
Insecticides	51	44	217,406
Fertilizers	1	1	1,200
Manure/sludge drainage	35	34	1,040,993
Subtotal	87	79	1,259,599
Industrial			
Mining	34	27	1,442,701
Food products	36	31	1,792,676
Paper products	11	8	12,900
Chemicals	36	28	703,915
Petroleum	22	16	154,292
Metals	12	9	8,127
Combinations	8	7	94,619
Other	35	34	403,650
Subtotal	194	160	4,622,790
Municipal			
Sewerage systems	74	64	1,284,297
Water systems	7	7	6,532
Swimming pool	4	3	1,409
Parks	2	2	51,000
Other	3	3	3,550
Subtotal	90	79	1,347,248
Transportation			
Rail	6	6	12,792
Truck	11	11	65,659
Barge or boat	3	—	—
Pipeline	7	7	24,150
Subtotal	27	24	102,631
Other operations:	38	30	1,410,569
Total	436	372	8,742,927

# POLLUTION CAUSED FISH KILLS--1967

eighth annual report

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION • WASHINGTON, D.C. 20242

AVAILABLE  
bound volume

TABLE 4 — Fish kill summary  
by operation

SOURCE OF POLLUTION	TOTAL	REPORTED	
	REPORTS	REPORTS	FISH
<b>Agricultural</b>			
Insecticides, poisons, etc.	43	32	329,130
Fertilizers	2	2	10,000
Municipal sewage discharge	45	37	1,263,137
Subtotal	90	71	1,607,267
<b>Industrial</b>			
Mining	19	16	1,113,339
Food products	26	18	6,654,237
Paper products	5	4	6,839
Chemicals	24	22	43,732
Petroleum	19	12	53,434
Metals	19	17	49,656
Combinations	3	3	7,811
Others	24	21	147,933
Subtotal	139	113	8,037,091
<b>Municipal</b>			
Sewerage systems	77	60	626,544
Refuse disposal	1	—	—
Water systems	8	7	11,872
Swimming pool	4	4	4,623
Power	1	1	200
Subtotal	91	72	643,304
<b>Transportation</b>			
Rail	4	3	12,950
Truck	7	7	27,062
Barge or boat	3	3	80,250
Pipeline	8	6	22,261
Subtotal	22	19	143,123
<b>Other operations</b>			
	33	28	638,255
<b>Total</b>	<b>375</b>	<b>303</b>	<b>11,119,051</b>

# Fish kills - 1968

## ninth annual report

The annual census of fish kills began in June 1960, and since that time a total of 103,380,000 fish have been reported killed in 2,830 incidents.

In 1968 alone, an estimated 15,236,000 fish were reported killed in 42 States by identifiable pollution sources. This was an increase of 3,645,000, or 31 percent, over 1967, when 11,591,000 fish were killed in 40 States.

Of the 438 reports of definite fish kills by pollution, only 379 specified the number of fish killed. Another 107 fish kills were reported, but the causes of these deaths could not be determined, although pollution was suspected in a number of the cases.

Improved reporting practices, variations in weather, or other factors could be partially responsible for the increased number of fish kills reported.

The largest fish kill in 1968 occurred on the Allegheny River at Bruin, Pa., where 4,029,000 fish died. A petroleum refinery company's lagoon overflowed into another pond whose walls broke, releasing chemicals into a stream. Suds 6 feet high were created as the mixture flowed along the stream.



#### 4--Fish kill summary by source of pollution

SOURCE OF POLLUTION	TOTAL REPORTS	REPORTED FISH KILLED	
		NUMBER OF REPORTS	NUMBER OF FISH
<b>AGRICULTURAL</b>			
Insecticides, poisons, etc.	51	42	325,194
Fertilizers	5	5	15,116
Manure/silage drainage	21	19	35,238
<b>Subtotal</b>	<b>77</b>	<b>66</b>	<b>375,548</b>
<b>INDUSTRIAL</b>			
Mining	21	20	82,657
Food and kindred products	35	28	450,074
Paper and allied products	6	8	203,329
Chemicals	39	33	731,691
Petroleum	22	18	4,272,662
Metals	18	17	252,598
Combinations	3	3	3,200
Others	31	25	259,012
<b>Subtotal</b>	<b>187</b>	<b>152</b>	<b>6,055,713</b>
<b>MUNICIPAL</b>			
Sewerage systems	97	86	6,161,673
Refuse disposal	3	3	3,934
Water systems	11	10	335,190
Swimming pool	4	4	1,232
Power	7	5	253,235
<b>Subtotal</b>	<b>122</b>	<b>108</b>	<b>6,755,264</b>
<b>TRANSPORTATION</b>			
Rail	10	8	223,937
Truck	5	5	6,003
Barge or boat	9	9	1,839
Pipeline	15	11	533,586
<b>Subtotal</b>	<b>39</b>	<b>33</b>	<b>825,365</b>
<b>OTHER OPERATIONS</b>	<b>23</b>	<b>20</b>	<b>578,124</b>
<b>Total</b>	<b>438</b>	<b>379</b>	<b>14,275,214</b>

### Quotation of the Day

"We are in a state of emergency. Our children cannot go out. Our pools are ruined for the summer. It's a question of survival—the caterpillars or us!"—Mrs. Helene Gaylord of Shirley, L.I., calling for action against a gypsy moth infestation in Suffolk County. [59.7.]

## Suffolk Legislature to Fight An Infestation of Gypsy Moths

By CARTER B. HORSLEY

Special to The New York Times

RIVERHEAD, L. I., June 23—chewed their way through Long Island's invasion by red-tailed forest, fruit and shade and blue pollen-dotted gypsy trees as well as many other moth caterpillars today was exceptional. A survey last fall by tended to the Suffolk County, the New York State Conservation Department, which presented the then Department estimated that hairy brown creatures with red about 25,000 acres on their island, and a resolution to eliminate all of them in Suffolk County, were severely infested.

The caterpillars arrived in and in danger of extinction. large cans and plastic bags. Conservation groups have brought to the legislative session a resolution against sion by more than 10 State residents. The State Department of the communities of residents, to the invasion. Shirley, Massie and Jones. The State Department of the residents demanded immediate of aerial spraying with Devin emergency action to curb this earlier this month, but only year's invasion which is, according to some agricultural of low population density. experts, the largest since the moth was introduced into this country in 1863.

"We are in a state of emergency," Mrs. Helen Gaylord of 32 Maple Avenue in Shirley told caterpillars which enter a rest-the Legislature. "Our children cannot go out. Our pools are finished for the summer. It's a question of survival—the caterpillars or us."

### A Tourist Attraction

"We are losing our sanity," Mrs. Gaylord maintained, flicking caterpillars off the edge of owners do not desire spraying. one can with her finger and. Louis Novak of Shirley said stepping on others crawling that, if the caterpillars were not about on the trees. "We are worried out, the thousands of even becoming a tourist attraction that had been collection," she argued. "They march in would be dumped on the along the road in battalions." "I have seen various state officials Since hatching in early May, "even if we have to go to jail." from their buff-colored clusters. "Don't think we can't kill a of eggs, the caterpillars have van with caterpillars," he said.

### Informal Commitment

The Legislature made an informal commitment to do what-ever it could to combat the caterpillars which enter a rest-the Legislature. "Our children cannot go out. Our pools are finished for the summer. It's a question of survival—the caterpillars or us."

County Executive H. Lee De-nison said he did not think he "would support aerial spraying" but was awaiting a report on a specific plan of action and local counseling on county ac-tion in cases where property

# Birds on the Line

By Paul H. Mearns

Consulting Ornithologist, U.S. Fish and Wildlife Service

Bird populations are being depleted at an alarming rate. The depletion is not only in the number of birds but also in the variety of species. The depletion is not only in the number of birds but also in the variety of species. The depletion is not only in the number of birds but also in the variety of species.

Many of the birds that are being depleted are the ones that are most useful to man. The depletion is not only in the number of birds but also in the variety of species. The depletion is not only in the number of birds but also in the variety of species.

Many of the birds that are being depleted are the ones that are most useful to man. The depletion is not only in the number of birds but also in the variety of species. The depletion is not only in the number of birds but also in the variety of species.

Common varieties can be seen by a few observers in readily accessible areas. Common varieties can be seen by a few observers in readily accessible areas.

Other surveys of birds are made by several agencies. For the most part, they count the birds by the type of bird, of bird, primary game birds and waterfowl. The

depletion is not only in the number of birds but also in the variety of species. The depletion is not only in the number of birds but also in the variety of species.

Table 1—Approximate number of birds of all species counted in the United States during the years 1912-1962.

Year	1912	Observers	Number of birds
1912	2,100	5,000	1,000
1913	2,100	5,000	1,000
1914	2,100	5,000	1,000
1915	2,100	5,000	1,000
1916	2,100	5,000	1,000
1917	2,100	5,000	1,000
1918	2,100	5,000	1,000
1919	2,100	5,000	1,000
1920	2,100	5,000	1,000
1921	2,100	5,000	1,000
1922	2,100	5,000	1,000
1923	2,100	5,000	1,000
1924	2,100	5,000	1,000
1925	2,100	5,000	1,000
1926	2,100	5,000	1,000
1927	2,100	5,000	1,000
1928	2,100	5,000	1,000
1929	2,100	5,000	1,000
1930	2,100	5,000	1,000
1931	2,100	5,000	1,000
1932	2,100	5,000	1,000
1933	2,100	5,000	1,000
1934	2,100	5,000	1,000
1935	2,100	5,000	1,000
1936	2,100	5,000	1,000
1937	2,100	5,000	1,000
1938	2,100	5,000	1,000
1939	2,100	5,000	1,000
1940	2,100	5,000	1,000
1941	2,100	5,000	1,000
1942	2,100	5,000	1,000
1943	2,100	5,000	1,000
1944	2,100	5,000	1,000
1945	2,100	5,000	1,000
1946	2,100	5,000	1,000
1947	2,100	5,000	1,000
1948	2,100	5,000	1,000
1949	2,100	5,000	1,000
1950	2,100	5,000	1,000
1951	2,100	5,000	1,000
1952	2,100	5,000	1,000
1953	2,100	5,000	1,000
1954	2,100	5,000	1,000
1955	2,100	5,000	1,000
1956	2,100	5,000	1,000
1957	2,100	5,000	1,000
1958	2,100	5,000	1,000
1959	2,100	5,000	1,000
1960	2,100	5,000	1,000
1961	2,100	5,000	1,000
1962	2,100	5,000	1,000

depletion is not only in the number of birds but also in the variety of species. The depletion is not only in the number of birds but also in the variety of species.

depletion is not only in the number of birds but also in the variety of species. The depletion is not only in the number of birds but also in the variety of species.

depletion is not only in the number of birds but also in the variety of species. The depletion is not only in the number of birds but also in the variety of species.

Table 2—Approximate number of robins counted in the United States during the years 1912-1962.

Year	Robins
1912-12	41,214
1913-13	86,255
1914-14	367,733
1915-15	925,955

With the depletion of robin populations, robins found in the United States are becoming scarce. The depletion is not only in the number of birds but also in the variety of species.



... ..

- Journal of Management Studies*, 19(6), 709-728.

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All communications on the above subject should be addressed to: 100-443888

April, 1954

W. E. Cunniff, Acting Secretary

## KANSAS ENTOMOLOGICAL SOCIETY

The 49th annual meeting of the American Psychological Society for the Advancement of the Study of the Negro was held at the University of Chicago on the 10th, 11th, and 12th of January, 1944. A social hour and a lunch were given to the delegates.

507-0115 AFRICAN COLLECTION

On the 17th of January, 1900, the following letter was received from the Hon. J. H. Smith, Secretary of the Interior, Washington, D. C.:

## FROM THE MANAGING EDITOR

[illegible]

*Cover*—The cover of the book will have the same design as the cover of the 1965 volume.

UNITED STATES DEPARTMENT OF AGRICULTURE

Goodman DU 8-4977  
McDavid DU 8-1025

Washington, July 2, 1970

Gypsy Moth Defoliation Now Occurring in Northeastern States:

Gypsy moth defoliation of woodlands in New Jersey, New York and Pennsylvania is now becoming evident, the U. S. Department of Agriculture reports. This defoliation is expected to worsen during the next two weeks.

New Jersey counties of Monmouth, Sussex, Passaic, and Morris are experiencing their worst gypsy moth defoliation, according to officials of USDA's Agricultural Research Service. The New Jersey Department of Agriculture predicts that at least 100,000 acres will be defoliated -- more than double last year's acreage.

Over 100,000 acres of northern New Jersey woodlands were sprayed with Sevin during the second week of June in an effort to control the pest. The control program was a cooperative effort of ARS, the New Jersey Department of Agriculture, and infested municipalities. An additional 13,000 to 14,000 acres in southern New Jersey were also sprayed with Sevin in a cooperative State-Federal effort.

Current defoliation estimates by the New York Conservation Department approach 100,000 acres on Long Island and in Orange, Rockland, Sullivan, and Ulster Counties. This figure is expected to increase when the full impact of this year's devastation becomes evident.

4019

(more)

USDA 2024-70

In eastern Massachusetts, the gypsy moth has killed 20,000 acres with 75 percent of the trees in the area being completely defoliated.

In their extensive forests, the gypsy moth strips the leaves from forest, shade, and fruit trees, and destroys ornamental shrubs. By defoliating forests, they increase fire and erosion hazards, adversely affect stream flow, reduce land and recreational values, and destroy wildlife habitat. ARS plant protection officials point out that a small percentage of the damage is done to hill white pines, spruce, and hemlock. The defoliation of white pine is not fatal.

Gypsy moth was first introduced to the United States in 1869 by a Medford, Mass. naturalist. Since then, it has been widely spread from Great New England, New York, New Jersey, and Pennsylvania. Recently, gypsy moths have also been found in Virginia, Maryland and Delaware. The extent of gypsy moth infestations has yet to be determined. A gypsy moth epidemic in Michigan is now considered eradicated.

During 1966, the gypsy moth killed 42,000 acres of northeastern woodlands -- more than triple the acreage struck during 1965.

Plant protection officials are openly pessimistic about the possibility of keeping gypsy moths restricted to the presently infested areas. If the moths reach the commercial forests in the Appalachian and Ozark Mountain ranges, the economic loss could be tremendous.

Until 1958, plant protection officials had hoped to eradicate the gypsy moth from the United States. However, the program objectives were changed to containment when large scale spraying to eradicate the gypsy moth was discontinued. Since then, the numbers of acres becoming infested annually has steadily increased.

USDA 2024-70

COPY

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from the original





# STATES AND PROVINCES OF THE UNITED STATES AND CANADA

The following table shows the years in which the various States and Provinces of the United States and Canada have enacted laws for the protection of the various species of birds and animals. The table is arranged in alphabetical order of the States and Provinces, and the years are given in chronological order. The table is based on the information furnished by the various States and Provinces, and is not intended to be a complete list of all the laws enacted in this field.

1. States and Provinces which protect all birds and animals as far as reasonable, when actually taken or killed.

Alabama	1901
Alaska	1906
Arizona	-
Arkansas	-
California	1907
Colorado	1901
Connecticut	1900
Delaware	1910
District of Columbia	1900
Florida	1900
Georgia	1900
Idaho	1900
Illinois	1900
Indiana	1900
Iowa	1900
Kansas	1900
Kentucky	1900
Louisiana	1900
Maine	1900
Maryland	1900
Massachusetts	1900
Michigan	1900
Minnesota	1900
Mississippi	1900
Missouri	1900
Montana	1900
Nebraska	1900
Nevada	1900
New Hampshire	1900
New Jersey	1900
New Mexico	1900
New York	1900
North Carolina	1900
North Dakota	1900
Ohio	1900
Oklahoma	1900
Oregon	1900
Pennsylvania	1900
Rhode Island	1900
South Carolina	1900
South Dakota	1900
Tennessee	1900
Texas	1900
Vermont	1900
Virginia	1900
Washington	1900
West Virginia	1900
Wisconsin	1900
Wyoming	1900

## 2. States and Provinces which protect all birds and animals except the following:

Alabama	-	all but Red-winged and Great Horned Owl.
Arizona	-	all but Red-winged, Great Horned Owl.
California	-	all but Red-winged, Great Horned Owl.
Colorado	-	all but Red-winged, Great Horned Owl.
Connecticut	-	all but Red-winged, Great Horned Owl.
Delaware	-	all but Red-winged, Great Horned Owl.
District of Columbia	-	all but Red-winged, Great Horned Owl.
Florida	-	all but Red-winged, Great Horned Owl.
Georgia	-	all but Red-winged, Great Horned Owl.
Idaho	-	all but Red-winged, Great Horned Owl.
Illinois	-	all but Red-winged, Great Horned Owl.
Indiana	-	all but Red-winged, Great Horned Owl.
Iowa	-	all but Red-winged, Great Horned Owl.
Kansas	-	all but Red-winged, Great Horned Owl.
Kentucky	-	all but Red-winged, Great Horned Owl.
Louisiana	-	all but Red-winged, Great Horned Owl.
Maine	-	all but Red-winged, Great Horned Owl.
Maryland	-	all but Red-winged, Great Horned Owl.
Massachusetts	-	all but Red-winged, Great Horned Owl.
Michigan	-	all but Red-winged, Great Horned Owl.
Minnesota	-	all but Red-winged, Great Horned Owl.
Mississippi	-	all but Red-winged, Great Horned Owl.
Missouri	-	all but Red-winged, Great Horned Owl.
Montana	-	all but Red-winged, Great Horned Owl.
Nebraska	-	all but Red-winged, Great Horned Owl.
Nevada	-	all but Red-winged, Great Horned Owl.
New Hampshire	-	all but Red-winged, Great Horned Owl.
New Jersey	-	all but Red-winged, Great Horned Owl.
New Mexico	-	all but Red-winged, Great Horned Owl.
New York	-	all but Red-winged, Great Horned Owl.
North Carolina	-	all but Red-winged, Great Horned Owl.
North Dakota	-	all but Red-winged, Great Horned Owl.
Ohio	-	all but Red-winged, Great Horned Owl.
Oklahoma	-	all but Red-winged, Great Horned Owl.
Oregon	-	all but Red-winged, Great Horned Owl.
Pennsylvania	-	all but Red-winged, Great Horned Owl.
Rhode Island	-	all but Red-winged, Great Horned Owl.
South Carolina	-	all but Red-winged, Great Horned Owl.
South Dakota	-	all but Red-winged, Great Horned Owl.
Tennessee	-	all but Red-winged, Great Horned Owl.
Texas	-	all but Red-winged, Great Horned Owl.
Vermont	-	all but Red-winged, Great Horned Owl.
Virginia	-	all but Red-winged, Great Horned Owl.
Washington	-	all but Red-winged, Great Horned Owl.
West Virginia	-	all but Red-winged, Great Horned Owl.
Wisconsin	-	all but Red-winged, Great Horned Owl.
Wyoming	-	all but Red-winged, Great Horned Owl.

Alaska	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Arizona	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
California	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Colorado	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Connecticut	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
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Louisiana	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Maine	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Maryland	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Massachusetts	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Michigan	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Minnesota	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Mississippi	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Missouri	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Montana	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Nebraska	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Nevada	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
New Hampshire	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
New Jersey	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
New Mexico	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
New York	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
North Carolina	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
North Dakota	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Ohio	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Oklahoma	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Oregon	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Pennsylvania	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Rhode Island	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
South Carolina	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
South Dakota	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Tennessee	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Texas	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Vermont	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Virginia	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Washington	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
West Virginia	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Wisconsin	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.
Wyoming	1937	all birds of prey, including Golden Eagle, Bald Eagle, Osprey, and all species of vultures.

3. States, Possessions and Territories that Prohibit ONE of their birds of prey:

Montana, Nevada, New Mexico,  
New Hampshire, New York,  
North Carolina,  
North Dakota,  
Utah Territory

Federal Laws (U.S. only):

Prohibition of the Golden Eagle, Bald Eagle, Osprey, and all species of vultures was enacted by Congress in October, 1902, to "prevent the killing of the Golden Eagle, except that the Governor of any State may receive permission to kill Golden Eagles to successfully protect livestock" and the Secretary of the Interior may authorize such killing without a permit.

The Governors of Colorado, Montana, Wyoming, New Mexico, South Dakota and Texas have requested such permission in one year or another.

NOTE:

The recipients include the Cassin's and Sharp-shinned and Cooper's Hawks. The Peregrine is also commonly called Duck hawk. The vultures are usually called "Buzzards" in the South.

We will appreciate any information that up-dates this summary.

R. C. Clement  
October 31, 1963

NATIONAL AUDUBON SOCIETY • TWO FIFTH AVENUE • NEW YORK, N.Y. 10022

THE  
NATIONAL  
ARCHIVES

JOHN F. KENNEDY

1961  
1962  
1963  
1964

1965  
1966  
1967  
1968

1969

## A STATEMENT OF POLICY

The Board of Directors of the National Association of Audubon Societies has adopted the following, expression of policy with relation to the preservation of Hawks:

### ONE

We oppose the extermination of any species of bird, as the we include Hawks and Owls within the category.

### TWO

We advocate protection, under all conditions, of rare Hawks, such as the Duck Hawk, and of beneficial Hawks and Owls such as the Broad-winged Hawk and the Barn Owl.

### THREE

We oppose the killing of Hawks and Owls, other than the individual birds known to be damaging property.

### FOUR

We condemn botulism, Hawk campaigns and general Hawk shooting. First: They result in the indiscriminate killing, which is hard to control, as great numbers of hunters are not qualified to tell one species of Hawk or Owl from another. Second: They put many hunters in the field outside the regular shooting season, making law enforcement more difficult. Third: If control is needed, such work should be conducted only by properly qualified authorities.

### FIVE

We are opposed to the pole trap because it is cruel and indiscriminate.

### SIX

We aim--First: Through educational methods, to create greater popular appreciation of the aesthetic, scientific and economic value of Hawks and Owls. Second: To combat the constant propaganda which encourages their destruction. Third: To work for the enactment of laws for their protection.

## NATIONAL ASSOCIATION OF AUDUBON SOCIETIES

For the Protection of Wild Birds and Animals

KERMIT ROOSEVELT, President

T. GILBERT PEARSON, LL.D., President Emeritus

JOHN H. BAKER, Executive Director

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PR NOTICE 70-19

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
PESTICIDES REGULATION DIVISION  
WASHINGTON, D.C. 20250

August 18, 1970

NOTICE TO MANUFACTURERS, FORMULATORS, DISTRIBUTORS  
AND REGISTRANTS OF ECONOMIC POISONS

Attention: Person Responsible for Federal Registration of  
Economic Poisons

Cancellation of Registration of Certain DDT Products

During the past 25 years DDT has been used extensively for the control of a variety of insect pests. In addition to widespread agricultural use it has been invaluable in the control of certain vectors of diseases. Its continued widespread use and relatively slow degradation has resulted in the presence in the environment of low but undesirable levels of DDT. Trace residues can often be detected in areas far removed from sites of application. Presently available scientific evidence indicates that there are adverse effects upon certain species of fish and wildlife as a result of the use of DDT. These factors were recognized by the President's Science Advisory Committee in its report of May 15, 1963, entitled, "Use of Pesticides." The report recommended an orderly reduction in the use of persistent pesticides with their elimination being the goal. The report of the Environmental Pollution Panel of the PSAC entitled, "Restoring the Quality of Our Environment" also expressed concern over the persistence of pesticides in the Environment, and recommended more stringent controls.

In November of 1966 the Department of Agriculture requested that a committee be appointed by the National Research Council to appraise the significance of residues from the standpoint of their effects on the environment. The committee submitted its report in May of 1969, and recommended that immediate attention be given to the problem of buildup of persistent pesticides in the total environment. The Commission on Pesticides and Their Relationship to Environmental Health, appointed by the Secretary of Health, Education, and Welfare, recommended in its report of December 1969, that all uses of DDT be eliminated except those uses essential to the preservation of human health and welfare.

There was published in the Federal Register on November 25, 1969 (34 F.R. 18827) a notice of orders of cancellation of the registrations of products containing DDT for certain uses under the Federal Insecticide,

Fungicide, and Rodenticide Act, as amended (7 U.S.C. 135 et seq.). The notice also stated that consideration was being given to the cancellation of any other uses of DDT unless it could be shown that certain uses are essential in the protection of human health and welfare and only those uses for which there are no effective and safe substitutes for the intended use would be continued. The notice offered interested persons an opportunity to submit data, views, and comments concerning the matter.

A committee of outside experts appointed by the Department of Agriculture reviewed the data and information regarding essential uses of products containing DDT and issued its report in June 1970. The report of that committee, the data and information submitted pursuant to the Federal Register notice of November 25, 1969, and all other relevant information have been analyzed, and it has been determined that the following uses of DDT are not essential to the protection of the public health and welfare:

- |                |                        |
|----------------|------------------------|
| I. Beef cattle | Seasoned lumber        |
| Goats          | Finished wood products |
| Sheep          | and buildings          |
| Swine          |                        |

Commercial, institutional and industrial establishments including non-food areas in food processing plants and restaurants (does not include industrial fabric treatments for control of carpet beetles and clothes moths)

II. Uses on the following crops except for soil surface application or for treatment of seedlings:

- |                 |                 |
|-----------------|-----------------|
| Blackberry      | Pear            |
| Boysenberry     | Plum            |
| Dewberry        | Prune           |
| Loganberry      | Quince          |
| Blueberry       | Mango           |
| Apple           | Cabbage         |
| Cherry          | Cauliflower     |
| Peach           | Collards        |
| Nectarine       | Kale            |
| Apricot         | Kohlrabi        |
| Almonds         | Okra            |
| Pecans          | Parsnips        |
| Walnuts         | Peas (garden)   |
| Broccoli        | Peas (blackeye) |
| Brussel sprouts | Rutabaga        |
| Celery          | Safflower       |
| Eggplant        | Asparagus       |
| Melons          | Table beet      |
| Pumpkin         | Mustard greens  |



3

Radish  
Huckleberry  
Gooseberry  
Raspberry  
Strawberry  
Currant  
Squash  
Swiss chard  
Hardwood trees

Turnip  
Potatoes  
Cucumbers  
Spinach  
Hemlock  
Larch  
Pines  
Spruce

Flowers and ornamental plants in commercial plantings (home use previously cancelled)

Lawn and ornamental turf areas (home use previously cancelled)

Treatments for control of pests of public health significance and pests subject to State/Federal quarantines are not cancelled if labeling restricts such applications to use only under the direction of public health officials or State or Federal quarantine officials.

Final determinations have not been made concerning the essentiality of the other uses of DDT. A final determination as to whether each of the other uses is essential in the protection of human health and welfare will be made after a review in accordance with the Interdepartmental Agreement for Protection of the Public Health and the Quality of the Environment in Relation to Pesticides. A notice concerning these determinations will be issued as soon as such review is completed.

In view of the above, and in accordance with the provisions of Section 4c of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135b(c)), it has been determined that all registrations of DDT products bearing directions for any use or uses listed above, should be cancelled for the reason that continued registration of these products is contrary to the provisions of Section 2z(2)(c), 2z(2)(d), and 2z(2)(g) of the Act (7 U.S.C. 135(z)(2)(c), 135(z)(2)(d), 135z(2)(g)). Accordingly, you are hereby notified that the registrations of these products are cancelled, effective 30 days following receipt of this notice, unless revised labeling is submitted or procedures set forth in Section 4c of the Act are invoked.

Labeling that can be modified to comply with this notice must be submitted to the Registration Branch, Pesticides Regulation Division, Agricultural Research Service, U.S. Department of Agriculture, Washington, D.C. 20250, if continued registration is desired.

A

Withdrawal or relabeling of stocks of those products not now in the possession or control of the registrants is not considered necessary.

*G. G. Rohwer*

G. G. Rohwer  
Acting Director

RECEIVED

AUG 19 1970

CLERK OF THE UNITED  
STATES COURT OF APPEALS

IN THE  
UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

United States Court of Appeals  
for the District of Columbia Circuit

FILED AUG 31 1970

No. 23813

*Nathan J. Paulson*

THE ENVIRONMENTAL DEFENSE FUND, INCORPORATED; SIERRA CLUB;  
WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL; and NATIONAL  
AUDUBON SOCIETY,

Petitioners,

STATE OF NEW YORK and IZAAK WALTON LEAGUE OF AMERICA,

Intervenors,

-against-

CLIFFORD M. HARDIN, Secretary of Agriculture, and UNITED STATES  
DEPARTMENT OF AGRICULTURE,

Respondents,

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA,

Intervenor.

Petition for Review of Order  
of the United States Department  
of Agriculture

BRIEF FOR INTERVENOR  
STATE OF NEW YORK

LOUIS J. LEFKOWITZ  
Attorney General of the  
State of New York  
Attorney for Intervenor  
New York State

PAUL S. SHEMIN  
Assistant Attorney General

GORDON P. MACDOUGALL  
of Counsel

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Intervenor.

---

Petition for Review of Order  
of the United States Department  
of Agriculture

---

BRIEF FOR INTERVENOR  
STATE OF NEW YORK



## JURISDICTION

The jurisdiction of this Court rests on § 4d of Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, 7 U.S.C. § 135b(d), 61 Stat. 168, as amended by 78 Stat. 190.

## ISSUES PRESENTED FOR REVIEW

I. Respondents have erred in denying Petitioners' request that they suspend DDT registrations immediately, pending the completion of Section 4c cancellation proceedings.

II. Respondents have erred in denying Petitioners' request that they initiate cancellation proceedings under Section 4c FIFRA.

## PREVIOUS CONSIDERATION BY THIS COURT

This case was previously before this Court (Bazelon, C.J. and Robinson, J.) under a similar title - the title of the instant case without the State of New York as Intervenor. The number of the prior case is the same as the number of the instant case - No. 23,813.

## REFERENCES TO RULINGS

Respondents' "Statement Of The Reasons Underlying The Decisions On Behalf Of The Secretary With Respect To The Registration Of Products Containing DDT" was filed with the Court on June 29, 1970.

#### STATUTES AND REGULATIONS INVOLVED

Sections 2-4 of the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 135-135b, 61 Stat. 168, as amended by 78 Stat. 190, is attached as an addendum to Petitioners' brief.

## STATEMENT OF THE CASE

### A. Preliminary Statement

By order dated August 6, 1970, the Court granted the motion of the State of New York to intervene in this action.

In the interests of avoiding unnecessary repetition, Intervenor New York adopts by reference the comprehensive "Statement Of The Case" contained in the Supplemental Brief, dated August 10, 1970, submitted to the Court by Petitioners. (See Pet. Supp. Brief at pp. 4-15). A summary of the extensive damage caused by DDT is set out below at "B" for the Court's convenience.

Intervenor New York also concurs in the "Argument" and "Conclusion" presented by Petitioners in their Supplemental Brief, at pp. 16-67.

This brief confines itself to arguments not advanced by Petitioners, in addition to arguments supplementing points advanced by Petitioners.

### B. Summary Of The Irreparable Damage Already Caused by DDT And The Damage Which DDT Will Cause In The Future

DDT is causing serious, permanent and irreparable damage to both man and the environment. This damage is widespread, and will remain with us forever. Moreover, DDT, a persistent and mobile pesticide already present in the environment can be expected to cause more harm in the future.

High concentrations of DDT in man cause abnormalities in liver, stomach, kidney, enzymatic and neurological functions.<sup>1</sup> Research with rodents shows that DDT has both carcinogenic and mutagenic effects on mammals.<sup>2</sup> Experiments on laboratory animals have demonstrated that DDT breaks down steroid sex hormones.<sup>3</sup>

DDT and its residues are a major hazard to bird populations, causing direct deaths (songbirds, robins)<sup>4</sup>, and reproductive failures leading to catastrophic declines in some species, threatening them with extinction (peregrine falcon, bald eagle, osprey, brown pelican, Cooper's and Sharp-skinned hawks).<sup>5</sup> DDT is causing direct kills and reproductive failures of fish, threatening important fisheries (salmon, trout).<sup>6</sup> DDT injures crustaceans (crabs, shrimp)<sup>7</sup>, and can reduce the photosynthetic activity of phytoplankton, the basis of all marine food chains.<sup>8</sup>

The fact that DDT is persistent and mobile cannot be overemphasized. Unlike many other pesticides, DDT is not readily broken down to non-toxic and non-biologically active compounds by natural processes. Remaining potent, it is carried by water and air throughout the entire world, causing as yet untold harm

1. Pet. Bibli. 286-290, 296, 297

2. Pet. App. 15, 16, 30-31; Mraz 470-472, 481-483, Pet. Bibli. 293, 300

3. Pet. Bibli. 42, 112, 229, 284

4. Pet. App. 14, 29

5. Pet. Bibli. 87-88, 105, 150, 154, 179, 211

6. Pet. App. 14, 29; Pet. Bibli. 28, 244-245, 306, 317

7. Pet. App. 14, 30; Pet. Bibli. 77, 117, 253

8. Pet. App. 14-15, 30; Pet. Bibli. 215, 281

in remote regions of the environment. DDT residues now contaminate many foods never treated with DDT, and are found in the tissues of virtually all human beings.

## ARGUMENT

- I. RESPONDENTS HAVE ERRED IN DENYING PETITIONERS' REQUEST THAT THEY SUSPEND DDT REGISTRATIONS IMMEDIATELY, PENDING THE COMPLETION OF SECTION 4c CANCELLATION PROCEEDINGS.

At the same time that Petitioners requested the initiation of cancellation proceedings, they requested the suspension of DDT registrations for the duration of the cancellation proceedings. Respondents denied the request. (Statement, p. 13).

The uncontroverted evidence clearly demonstrates that DDT (1) causes cancer and gene mutations in test animals, and (2) is causing widespread harm to fish and wildlife populations. DDT therefore presents an "imminent hazard to the public." To the extent that respondents' "findings" do not reveal an "imminent hazard", they cannot withstand judicial scrutiny under the substantial evidence rules of § 4d FIFPA.

- A. Proof of actual and widespread harm is not required for a showing of imminent hazard

Congress, contemplating situations where the cancellation procedures provided by 4c would not be sufficient for the protection of the public, provided for the suspension of registrations immediately, "when . . . necessary to prevent an imminent

hazard."<sup>9</sup>

Respondents have apparently concluded that unless it is proven that DDT is presently a hazard to the public, causing demonstrable and widespread harm, they have no mandate to suspend its registrations. In their "Statement" submitted to this Court on June 29, 1970, Respondents based their decision not to suspend DDT registrations on the fact that DDT has not conclusively been shown to cause cancer in man,<sup>10</sup> and that there is no threat to the "vast majority" of non-target organisms.<sup>11</sup>

Given the prevalence of DDT in our environment, conclusive proof as to DDT's carcinogenic effect on man and its destruction of wildlife in general would constitute a national disaster. An imminent hazard requires no such showing of proof.

The applicable statutory language refers specifically to the prevention of an imminent hazard. In addition, FIFRA registration restrictions are designed "for the protection of the public"<sup>12</sup> and "to prevent injury"<sup>13</sup> to man and his environment. The concern throughout is with the elimination of the danger before it causes harm to the public. Respondents are required to suspend

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9. FIFRA §4c, 7 U.S.C. § 135b(c), 61 Stat. 168, as amended by 78 Stat. 190

10. "[T]he claim that DDT has a carcinogenic effect on humans constitutes an unproved speculation." Statement, p. 3.

11. "There is no evidence of harm to the vast majority of non-target organisms". Statement, p. 6

12. FIFRA §2(7)(2)(c), 7 U.S.C. § 135(7)(2)(c), 61 Stat. 166, as amended by 73 Stat. 237

13. FIFRA §2(7)(2)(d), 7 U.S.C. § 135(7)(2)(d), 61 Stat. 166, as amended by 73 Stat. 287



a product's registration when there is evidence that harm will occur, not when it has already happened.

A recent study highlighted the importance of emphasizing the difference between proof of actual harmful effects, and the knowledge that such effects are likely to occur, without actual proof. In discussing the mutagenic effects of DDT on rats, after stating that the evidence now justifies the validity of applying such studies to man, the study went on to state that:

"[o]nce we prove that there is a genetic effect and genome replication takes place, we don't know how to turn it off. Genetic effects are irreversible. . ."

\* \* \*

"Our capacity to monitor the genetic effects on a human population is extremely limited at the present time. . . [M]ost of the things we see are. . . materials that will increase . . . the mutation rate, and are simply statistical and not unique. They. . . add to a high background rate that we already have. So we have an extremely difficult time in picking up a cause and effect relationship. In fact it's almost an impossibility in the area of mutagenicity and its also highly unlikely in the area of carcinogenicity. . ."

\* \* \*

"[W]idespread use of a chemical in the human population can in no way be equated with safety. We simply can't get the cause and effect relationship, population monitoring is simply too deficient and usage never can be equated with safety when we're talking about these long range genetic effects."

\* \* \*

"It may not be too wild to state that in the next 25 years or so genetic effects will probably compete with somatic injury as far as our number one public health problem."14

The House subcommittee investigating Respondents' deficiencies in FIFRA administration had the following to say about Respondents' use of the suspension clause:

". . .The subcommittee investigation disclosed a . . .serious deficiency as of mid-1967 in registration branch procedures for initiating action to remove from the market pesticides which were discovered to be hazardous after being registered. Moreover, as of mid-1969 the subcommittee found no evidence of any real improvement in the . . .situation."15

The subcommittee also stated that:

"[Respondents have] . . .consistently failed to take action to remove potentially hazardous products from marketing channels after cancellation of a pesticide registration or through suspension of a registration."16

They found, in fact, that:

"[Respondents have] no procedures or criteria for determining when a registration should be suspended on the ground that a product constitutes an 'imminent hazard' to the public."17

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14. "Mutagenic Effects of DDT and Other Pesticides in Rodents and Cultures of Mammalian Cells", pp. 2-4, transcript of seminar presented at Brookhaven National Laboratory, July 31, 1970, by Marvin Legator, Ph.D., Chief, Cell Biology Branch, Bureau of Science, F.D.A.
15. House Comm. on Government Operations, Deficiencies in Administration of Federal Insecticide, Fungicide, and Rodenticide Act, H.R. Rep. No. 262 (H. Rept. 91-637), 91st Cong., 1st Sess. 52 (1969)
16. Ibid., at p. 16
17. Ibid., at p. 16

Cancellation proceedings should be initiated when a question of safety arises. Where, as here, the evidence reveals that continued DDT use can cause irreparable harm to the public, its registration should be suspended.

B. The evidence reveals an imminent hazard from the use of DDT

The evidence at present indicates that DDT causes reproductive failures in birds and fish, in many cases seriously reducing their populations and threatening them with extinction. The survival of the bald eagle is threatened by DDT. The peregrine falcon, part of America's heritage, no longer exists in any meaningful way because of DDT.<sup>18</sup>

Several studies have shown that DDT has carcinogenic and mutagenic effects on the mammalian system. Congress, in its 1958 amendments to the Food, Drug and Cosmetic Act<sup>19</sup>, acknowledged that anything which produced cancer in animals was a hazard to the public. The 1956 symposium of the International Union Against Cancer, which included cancer experts from some fifty countries, reached the conclusion "that repeated exposure to even a minute dose of a cancer-producing agent constitutes a serious health hazard."<sup>20</sup> Former Secretary of Health, Education and Welfare Arthur S. Fleming, testifying in support of the so-called anti-

18. New York Times Magazine, Sunday, August 9, 1970

19. Section 409(c)(3)(A), 21 U.S.C. 348(c)(3)(A)

20. 106 Cong. Rec. 14350

cancer Delaney amendment, stated:

"The preponderance of scientific evidence clearly dictates our position: Our advocacy of the anticancer proviso. . . is based on the simple fact that no one knows how to set a safe tolerance for substances in human foods when those substances are known to cause cancer when added to the diet of animals."<sup>21</sup>

In a report submitted to Congress by the National Cancer Institute, it was stated that "[i]f a substance is shown by adequate tests to be carcinogenic for one mammalian species, it is probable that it is carcinogenic for many, but not necessarily all, other" species.<sup>22</sup> Secretary Fleming, testifying at the Congressional hearings, stated "it is our conviction as to sound public policy. . . that where. . . tests show that a substance will induce cancer when included in the diet of a test animal. . . it will be banned."<sup>23</sup> The Sixth Circuit has construed the Delaney clause as "generally intended to prohibit the use of any additive which under any conditions induces cancer in any strain of test animal." Bell v. Goddard, 366 F. 2d 177, 181 (1966).

The presence in food of any substance which causes cancer in test animals is considered by Congress to be a health

21. Hearings on H.R. 7624 and S. 2197 before the House Committee on Interstate and Foreign Commerce, 86th Cong., 2d Sess., p.61

22. Ibid., at p. 53

23. Ibid., at pp. 501, 514, 517

hazard, and will be banned. DDT, upon use, does not break down in the environment, but persists and spreads throughout the world and up the food chain. It is an imminent hazard to the public, and its use should be banned. Failure to do so under § 4c FIFRA is reversible error.

II. RESPONDENTS HAVE ERRED IN  
DENYING PETITIONERS' REQUEST  
THAT THEY INITIATE CANCELLATION  
PROCEEDINGS UNDER SECTION 4c FIFRA.

Petitioners requested that Respondents issue notices under § 4c FIFRA to commence cancellation proceedings for the registrations of all economic poisons containing DDT. Respondents stated that "further action with respect to cancellation should await completion of the use by use evaluations presently in progress" (Statement, p. 1).

As a matter of law, Respondents erred:

(1) in circumventing the legally mandated § 4c cancellation proceedings through the use of non-statutory proceedings; and

(2) in imposing on Petitioners the burden of proof as to the human and environmental hazards of DDT, for where, as here, the record discloses reasonable, substantial and apparent questions regarding that hazard, the statute compels Respondents to act and places the burden of proof as to the safety of the product on the manufacturers thereof.

Respondents' own statement, as well as the record itself, satisfy the requirements for the initiation of § 4c cancellation proceedings.

FIFRA was passed in 1947 to protect the public from harmful or ineffective economic poisons, such as pesticides.<sup>24</sup> The Act contains standards and procedures with regard to pesticides which are designed to "protect the public"<sup>25</sup> and "prevent injury to living man and other vertebrate animals, vegetation and useful invertebrate animals".<sup>26</sup>

Economic poisons such as DDT are required to be registered with the Secretary of Agriculture prior to sale in interstate commerce.<sup>27</sup> Registration is made contingent upon proper labelling. If improperly labelled, the economic poison will be considered "misbranded" and cannot be registered. A product is "misbranded" if the label is not adequate, if complied with, to avoid injury to the public and to man, animals and the environment. If a label cannot be written to prevent such injury, the economic poison is considered inherently misbranded, and cannot be registered or sold in interstate commerce.<sup>28</sup>

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- 24. FIFRA § 2(a), 7 U.S.C. § 135(a), 61 Stat. 163 (1947).
- 25. FIFRA § 2 (z) (2) (c), 7 U.S.C. § 135 (z) (2) (c), 61 Stat. 166, so amended by 33 Stat. 287.
- 26. FIFRA § 2(z) (2) (d) and (g), 7 U.S.C. § 135 (z) (2) (d) and (g), 61 Stat. 166, as amended by 73 Stat. 287.
- 27. FIFRA § 4(a) - (c), 7 U.S.C. § 135 b (a) - (c), 61 Stat. 167-168, as amended.
- 28. FIFRA § 2 (z) (2) (c) and (d), 7 U.S.C. § 135 (z) (2) (c) and (d).



Upon a preliminary finding that an economic poison is not in compliance with FIFRA, a section 4c cancellation notice is issued to the registrant. This notice represents the beginning of an administrative procedure which can lead to the cancellation of a product's registration. Under section 4c, the registrant can challenge the Secretary's preliminary determination through administrative procedures, which include the right to have the matter referred to an advisory committee of experts chosen by the National Academy of Sciences and a public hearing before an examiner. It is not until the end of these proceedings that the Secretary makes his final determination as to cancellation of a product's registration.

- A. Respondents' refusal to issue § 4-c notices is based upon their erroneous shifting of the burden of proof to petitioners.

In order to protect the public, Congress set up an administrative procedure which was to be triggered as soon as a question of product safety arose, and which required the manufacturer of the product to prove its safety before its registration would be permitted to remain uncanceled.

The procedural scheme set out by the Act is very clear. As Congress stressed in its review of the administration of FIFRA,

as amended, the Secretary of Agriculture should issue a Section 4c notice "whenever a reasonable question as to the safety of a registered product becomes apparent." (emphasis theirs)<sup>29</sup>

In seeking to determine the factors responsible for the Secretary's "failure to initiate such action in cases where it was obviously justified," the Report of the subcommittee concluded that the Secretary's failure was based upon "[a] mistaken belief that positive evidence of hazard---rather than simply a lack of adequate assurance of safety---[was] necessary to support a cancellation action".<sup>30</sup>

Compounding the problem, the House Committee noted, was the Secretary's misconception of the burden of proof.

"Since termination of 'protest registration' in 1964, the basic issue in determining whether or not a pesticide product is entitled to registration---whether the particular proceeding related to refusal to issue an initial registration or proposed cancellation of an existing one---is whether or not the product involved is safe and effective and thereby in compliance with the law. The burden of proving the product is safe is with the manufacturer in either case. It is apparent, however, that [Respondents'] personnel have been acting on the assumption that once a product was registered, the burden of proof shifted and it was up to the [Respondents] to prove a product was not safe before the registration could be cancelled."<sup>31</sup>

29. H.R. Rep. No. 262, p. 19, on. cit. at note 15.

30. ibid at p. 16.

31. ibid at pp. 51-52.

Testifying in support of the 1964 amendments to FIFRA,

Congresswoman Leonor Sullivan of Missouri stated on February 17, 1964:

"...I am strongly in favor of the legislation now before you to require industry, rather than the Federal Government, to shoulder the burden of proof in connection with the marketing of pesticides which may be unsafe for use as intended."

\* \* \*

"We must close any loopholes in the law which permit manufacturers to market products they cannot prove are safe in use in the manner intended. The burden of proof should not rest on the Government, because great damage can be done during the period the Government is developing the data necessary to remove a product which should not be marketed."<sup>32</sup>

Respondents' misconception as to the burden of proof is directly connected to their failure to initiate Section 4c proceedings upon presentation of a reasonable question of safety, rather than actual proof of harm. The proper burden of proof is built into the 4c cancellation proceedings, since a 4c notice in effect requires the registrant to come forward with proof of his product's safety in order to avoid cancellation of its registration.

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32. 110 Cong. Rec. 2948-9, 88th Cong. 2nd Sess., 1964.  
Also see debate 110 Cong. Rec. 7189.

Both the legislative history of the 1964 amendments,<sup>33</sup> as well as the Congressional review of their administration,<sup>34</sup> make it abundantly clear that the public need only raise a reasonable question as to the safety of a registered product in order to trigger the 4c mechanism. From that point on, it is the obligation of Respondents, under the law as set out in FIFRA, as amended, to initiate Section 4c proceedings so that the manufacturer of the product will be forced to shoulder the burden of proof as to the product's safety, or remove it from the market.

Yet Respondents, for as yet unexplained reasons, refuse to initiate cancellation proceedings until they have been provided with uncontrovertible proof that DDT is unsafe, and can be replaced in all its essential uses. They have given no explanation as to why all the reports, committees, evaluations, views, comments and submissions have not been undertaken within the framework of a Section 4c cancellation proceeding, as Congress intended, where the burden would be on manufacturers to come forward if possible, with reports and evaluations showing the safety of their DDT products.

33. H. Rept. No. 1125 on H.R. 9739, 88th Cong., 2nd Sess., 64 U.S.C. Cong. Ad. News 2166-2167.

34. Reports of the House Government Operations Committee, while lacking the standing of legislative history, are relevant aids to statutory interpretation. See Zabel v. Tabb, No. 27, 555 (5th Cir., July 16, 1970) Slip. Op. at 32-33.

- B. Respondents' decision not to issue § 4c cancellation notices arises from their unlawful refusal to follow the legally mandated scheme for registration and review, and their reliance, instead, on repetitive non-statutory procedures

In order to avoid placing the burden of proof upon the registrants, Respondents have resorted to the use of unnecessary, repetitive administrative procedures, having no statutory basis in FIFRA law.

It is clear from the legislative history of the 1964 amendments that Congress intended the § 4c cancellation proceedings to encompass the entire Departmental review procedure regarding the need for cancellation of a registered pesticide. Once a § 4c proceeding has been instituted, "applicants dissatisfied with the Secretary's action in refusing or cancelling registration may have recourse to advisory committee proceedings, public hearings [where the registrant's views and comments will be received] and eventually judicial review."<sup>35</sup>

Congress, during the hearings on the 1964 amendments to FIFRA, specifically considered granting the Secretary the right to refer matters to advisory committees on his own initiative, and rejected the proposal.

" . . . [The Secretary was given] the right to consult with an advisory committee during

-20-

35. H. Rept. No. 1125 on H.R. 9739, 88th Cong., 2d Sess., 64 U.S.C. Cong. & Ad. News. 2167

his initial consideration of an application for registration of a commercial poison, but not to refer the matter to an advisory committee after a final determination."<sup>36</sup>

Nothing could be plainer. Respondents, if they wish to assure themselves that an applicant's product is indeed as safe as is claimed, may refer the matter to an advisory committee. But after that final determination has been made, any question as to product safety must be resolved within the framework of § 4c cancellation proceedings, with the burden of proof upon the registrant.

The delay encountered in the instant case is not the result of a situation or facts peculiar to DDT. Rather, it has been the consistent policy of Respondents to operate outside the structure of FIFRA law. The House Deficiency Report had the following to say on the matter:

"The subcommittee investigation disclosed evidence of lengthy and unwarranted delays in initiating cancellation action after facts sufficient to justify such action became known to [Respondents]."

\* \* \*

"Despite the fact that a contested cancellation proceeding could take many months at best, the subcommittee found that in the case of certain arsenic compounds, U.S.D.A. resorted to an unnecessary preliminary procedure -- which took nearly two years -- before even starting cancellation proceedings."

<sup>36</sup>. Ibid., at pp. 2167-2168



"[Respondents]. . . had decided nearly two years before on the basis of 'numerous accidents involving children and domestic animals' that such products were too dangerous to be sold for use in and around the home."<sup>37</sup>

The arsenic compounds proceedings represent a classic example of the procedures used by Respondents as a means of circumventing the legitimate § 4c cancellation procedures. Because of the similarity between the arsenic and DDT procedures employed by Respondents, an examination into the matter as revealed by the subcommittee investigation is highly instructive and relevant to the instant case.

"On August 1, 1967, [Respondents] notified . . . registrants of pesticides containing [certain arsenic compounds] that products containing [more than a specified percentage of these compounds] would no longer be acceptable for use in or around the home. [The notice] was not so worded as to constitute the 30-day notice of cancellation required by statute.

On November 25, 1967, nearly four months later, a notice was published in the Federal Register stating, in effect, that [Respondents] were considering issuance of a formal interpretation taking the position already announced in the August 1, notice. The November 25 announcement also stated that interested persons would have 30 days after the date of publication to submit views or arguments concerning the proposed interpretation.

37. H.R. Rep. No. 268, pp. 8, 15, 50, on. cit. at note 15



On July 25, 1968, eight months later, a further notice was published in the Federal Register stating that 'after thorough consideration of all relevant matters' interpretation 25 was being issued. Interpretation 25, which was to become effective 90 days after publication, restated the same position taken in the original August 1, 1967 notice. On October 15, 1968, a few days before interpretation 25 was scheduled to become effective, still another notice was published. It stated that, after the July 25 publication, 'additional information was submitted which requires further study', and the effective date of interpretation 25 was therefore being 'delayed until further notice.' [T]he date submitted [between July and October '68] was essentially the same as that previously submitted.

At the subcommittee's June 24, 1969, hearing, when asked the status of the arsenicals matter, [Respondents] replied that \* \* \*in order to resolve this matter we have referred it to the National Academy of Sciences.

Under further questioning, [Respondents] admitted that the matter had not actually been referred to NAS, but that the Administrator of ARS [Agricultural Research Service] had been asked to so refer it. Further testimony made it plain that (1) referral by ARS would mean that USDA would pay the cost of the NAS study; if the study were made at the registrant's request, the registrant could be held responsible for the cost if the results did not support his position; (2) such a referral would not set in motion the cancellation procedures required by law since this can be done only by a 30-day notice to the registrant; and (3) the registrant might be legally entitled to demand a second NAS study after notice of cancellation if the results of the original study were adverse. Dr. George W. Irving, ARS Administrator, also acknowledged that he had personally concluded a long time ago that the arsenical products were not safe for use around the home.

On July 17, 1969 USDA announced that the proposed limitations . . . were being adopted and that manufacturers were being sent notices that registrations of products not in compliance would be cancelled if appropriate label changes were not made within 30 days. USDA did not refer the matter to NAS during the interim period between the subcommittee's June 24 hearing and the July 17 announcement."38

In its May 28, 1970 opinion, this Court stated:

". . . the statutory scheme of the FIFRA itself contemplates a lengthy inquiry into the conditions for the safe use of an economic poison before its registration may be finally cancelled. Since the issuance of cancellation notices merely triggers that administrative mechanism, it is questionable whether the Secretary may properly defer the decision to issue notices in order to engage in a preliminary inquiry not contemplated by the statute."

\* \* \*

"On remand, the Secretary should either decide on the record whether to issue the remaining requested cancellation notices, or explain the reasons for deferring the decision still further." (Slip Op. 12)

Respondents' "explanation" for deferring the decision still further is that "further action with respect to cancellation should await completion of the use by use evaluations presently in progress." (Statement, p. 1) Respondents have merely stated the reason for the delay -- the in-progress evaluations -- they have not explained these reasons. Such explanations would necessarily include Respondents' decision to employ their own, extra-

legal, review procedures, in violation of FIFRA cancellation rules. Nowhere in any of Respondents' papers, can one find a reason for conducting the evaluation and review procedures outside of the scope of § 4c proceedings.

Respondents' unlawful, non-statutory procedures have been in use for several years as regards DDT and its residues. In 1967, in direct contravention of the scheme of review contemplated by Congress under FIFRA § 4c, Respondents referred the matter to the National Academy of Sciences. Their report, received in 1969, recommended the reduction of the use of DDT to essential uses only. Yet Respondents have not begun cancellation proceedings against numerous non-essential uses.

Respondents' Statement clearly reveals that they plan to continue operating outside the procedures prescribed by FIFRA, unless this Court orders otherwise. While they have concluded that DDT use should be ended except where "essential to the public health and welfare" (Statement, p. 13), they have also stated:

"further action with respect to cancellations should await completion of the use by use evaluations presently in progress." (Statement, p. 1).

Respondents stated, in addition, that "substitutes [for DDT] cannot be recommended without detailed, time consuming evaluations...." (Statement, p. 8). They concluded that:

"there should be continuation of the comprehensive study of essentiality of particular uses and evaluations of potential substitutes."  
(Statement, p. 13).

Thus, in the same Statement, we have an admission by Respondents that DDT use should be ended, and a conclusion that any § 4c cancellation action should be postponed pending completion of time consuming, comprehensive, use by use evaluations of DDT and its substitutes. The procedural scheme of Respondents is at direct odds with the 1964 Congressional changes in FIFRA, which shifted the burden of evaluations and reports onto the shoulders of the manufacturers.

Prior to this Court's opinion of May 28, 1970, Respondents based their deferral of § 4c proceedings on the need to complete their preliminary inquiry into the matter. It is our contention that such an inquiry was in violation of FIFRA. Assuming arguendo the validity of the inquiry, it was completed as of June, 1970, when the last extant advisory report was filed with Respondents. Respondents' statement tells us that:

"The report and recommendations of that committee was completed in June 1970 and is being considered, along with all comments submitted in response to the Federal Register Notice, and all other relevant information." (Statement, p. 11).

Where is it being considered? FIFRA, the relevant statutory authority for Respondents' actions, requires that all such material be considered during § 4c cancellation proceedings.

For three years, Respondents have been referring DDT questions to various committees. In 1967, they commissioned an "intensive study".<sup>39</sup> Recently, they appointed a committee which "reviewed data and information."<sup>40</sup> Both these scientific groups recommended a reduction of uses of DDT, as did several other committees cited by Respondents in their Statement.<sup>41</sup>

And yet, Respondents, in the face of all these reports, still refuse to start the § 4c proceedings. This time around they have decided that § 4c consideration should be postponed pending the completion of use by use evaluations.

We hesitate to speculate as to the next name Respondents will use for their non-statutory review procedure.

39. Statement, p. 10.

40. Statement, p. 11.

41. Statement, p. 12.

We would ask of Respondents, after they have completed all their various reviews and evaluations, of what use will § 4c FIFRA be, other than to provide manufacturers with up to another year's worth of delay?

C. Respondent is required to initiate § 4c cancellation proceedings by (1) the evidence, and (2) its own findings and position.

---

(1) The evidence compels a finding that DDT is not in compliance with FIFRA standards.

In order to comply with FIFRA, each registered product must have a label which, if complied with, will be adequate "to prevent injury to living man and other vertebrate animals, vegetation, and useful invertebrate animals." 42 The Act is very clear and simple here. If a product cannot be labelled to prevent injury, it is inherently misbranded and cannot remain registered.

The evidence is overwhelming. Birds and fish are dying because of DDT. The pesticide interferes with their reproductive processes, driving a number of species to the point of extinction. Clearly, DDT cannot be used or labelled in compliance with FIFRA Law.



2. Respondents' findings and position compel  
the initiation of cancellation proceedings.

Respondents' own Statement dictates that widespread use of DDT should be discontinued. Specifically, their Statement concludes that DDT is persistent<sup>43</sup>, that DDT residues have accumulated in most forms of life, including man<sup>44</sup>, that DDT is carcinogenic in test animals,<sup>45</sup> that DDT is causing the decline of certain species<sup>46</sup>, and that it causes death to non-target fish and birds.<sup>47</sup>

Respondents' own findings, therefore, reveal that DDT cannot be used or labelled in compliance with FIFRA standards, a conclusion requiring the initiation of a § 4c cancellation proceeding.

43. "Its chemical activity may persist in the environment ...." (Statement, p. 2).

44. "It accumulates...in the tissues of animals, including man." (Statement, p. 2).

45. "There are reports of carcinogenicity resulting from the administration of large doses of DDT in test animals." (Statement, p. 3).

46. "There is information...that [DDT] is interfering with the reproduction of certain species of raptorial birds and may be a contributor...to the decline of some of these species." (Statement, p. 3).

47. "...DDT in lakes and streams has been a factor in fish mortality and reproductive failures." "High concentrations of DDT in other birds can cause death." (Statement, p. 3).



CONCLUSION

For all the reasons stated herein, Intervenor respectfully requests that this Court grant the following relief:

(a) that the Respondents' denial of the Petition of October 31, 1969, be set aside;

(b) that the Respondents be ordered immediately to suspend the registrations of all economic poisons that contain DDT, thereby initiating cancellation proceedings under Section 4c of FIFRA; and

(c) that, as an alternative to (b), the Respondents be ordered to issue Section 4c notices of cancellation for all economic poisons containing DDT.

Dated: New York, New York  
August 18, 1970

Respectfully submitted,

LOUIS J. LEFKOWITZ  
Attorney General of the  
State of New York  
Attorney for Intervenor  
New York State

PAUL S. SHERIN  
Assistant Attorney General  
GORDON P. MACDOUGALL  
of Counsel



CERTIFICATE OF SERVICE

I hereby certify that on this 19th day of August, 1970,  
copies of the foregoing Brief for Intervenor were served upon the  
following parties by delivering copies thereof to:

Alan S. Rosenthal, Esq.  
United States Department of Justice  
Washington, D.C. 20530  
Attorney for Respondents

Robert L. Ackerly and Charles O'Conner  
Sellers, Conner & Cuneo  
1625 K Street, N.W.  
Washington, D.C. 20006  
Attorneys for Intervenor Montrose  
Chemical Corporation and Amicus  
Curiae National Agricultural Chemical  
Association

James W. Moorman  
2008 Hillyer Place, N. W.  
Washington, D.C. 20009  
Attorney for Petitioners and Intervenor  
Izaak Walton League of America

Gordon P. MacDougall  
GORDON P. MACDOUGALL

**BRIEF FOR INTERVENOR, MONTROSE CHEMICAL  
CORPORATION OF CALIFORNIA**

---

IN THE  
**United States Court of Appeals**

FOR THE DISTRICT OF COLUMBIA CIRCUIT

---

**No. 23,813**

---

ENVIRONMENTAL DEFENSE FUND, INCORPORATED, SIERRA CLUB,  
WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL, and  
NATIONAL AUDUBON SOCIETY, *Petitioners,*

IZAAK WALTON LEAGUE OF AMERICA, and THE STATE OF  
NEW YORK, *Intervenors,*

V.

CLIFFORD M. HARDIN, Secretary of Agriculture, and UNITED  
STATES DEPARTMENT OF AGRICULTURE, *Respondents,*

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA, *Intervenor.*

---

**Petition for Review of Order of the United States  
Department of Agriculture**

---

ROBERT L. ACKERLY  
Sellers, Conner & Cuneo  
1625 K Street, N. W.  
Washington, D. C. 20006  
*Attorney for Intervenor  
Montrose Chemical  
Corporation of  
California*

August 31, 1970

United States Court of Appeals  
for the District of Columbia Circuit

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AUG 31 1970

*Nathan J. Paulson*  
CLERK



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ENVIRONMENTAL DEFENSE FUND, INCORPORATED, SIERRA CLUB,  
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NATIONAL AUDUBON SOCIETY, *Petitioners*,

IZAACK WALTON LEAGUE OF AMERICA, and THE STATE OF  
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v.

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STATES DEPARTMENT OF AGRICULTURE, *Respondents*,

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA, *Intervenor*.

---

Petition for Review of Order of the United States  
Department of Agriculture

---

**BRIEF FOR INTERVENOR, MONTROSE CHEMICAL  
CORPORATION OF CALIFORNIA**

---

**STATEMENT OF THE ISSUE PRESENTED FOR REVIEW**

Whether the decision of the Secretary of Agriculture on Respondents' Petition to Suspend and Cancel all Registrations for DDT under the Federal Insecticide, Fungicide, and Rodenticide Act was arbitrary or capricious or not supported by substantial evidence.

**INTEREST OF THE INTERVENOR  
MONTROSE CHEMICAL CORPORATION OF CALIFORNIA**

Montrose Chemical Corporation of California (Montrose) was granted leave by this Court to intervene in this proceeding. As shown in the Motion of Montrose to Intervene and the Affidavit in support thereof, Montrose is the largest producer of DDT in the world, employing approximately 225 people. Montrose has been producing DDT continuously for the past 24 years and in 1969 produced approximately 62 million pounds of DDT, over half of which was 75% technical DDT wettable powder sold to the World Health Organization and the U. S. Agency for International Development. Since there was no administrative proceeding, Montrose was neither a party to the administrative action nor to earlier phases of this case in the Court of Appeals. Following the decision of this Court on May 28, 1970, Montrose filed a Motion with the Secretary of Agriculture to intervene in the administrative proceeding. That Motion has not been acted upon. Thereafter, Montrose filed a Motion to Intervene which was granted by this Court. While the issue before the Court concerns the findings of the Secretary of Agriculture filed herein as the "Statement of the Reasons Underlying the Decisions on Behalf of the Secretary with Respect to the Registration of Products Containing DDT," Montrose submits that its interest in this proceeding is important since the decision of the Court and the actions of the Secretary of Agriculture pursuant thereto will have a direct bearing on Montrose.

**STATEMENT OF THE CASE**

Montrose agrees substantially with the "Supplemental Statement of the Case" in the Supplemental Brief for Petitioners (hereinafter referred to as "EDF") concerning the administrative proceedings and the proceedings in this Court on pages 3-7 of the Supplemental Brief. EDF has not discussed in its Supplemental Brief the scope of judicial review nor the nature of the judicial review to be

accorded the Secretary's Statement of Reasons. This Court held in its Opinion of May 28, 1970 that the Secretary's denial of the EDF Petition to Suspend and Cancel all Registrations of DDT is a reviewable order and that the scope of review is, "The suspended decision is committed by statute to the Secretary; the role of the Court is merely to insure that he exercises his discretion within a reasonable time, and to insure that his decision is supported by the record." 5 U.S.C. § 706 (Supp. V, 1969) [Slip Op. p. 11] Without conceding the correctness of the Court's decision on these issues, the reviewability of the Secretary's order and the scope of review stated by the Court is accepted as the law of the case.

### SCOPE OF REVIEW

#### (a) The Role of the Court

This Court has considered, undoubtedly more frequently than any other Appellate Court, the scope of review under this section of the Administrative Procedure Act. In *Deutsch v. United States Atomic Energy Comm'n.* 130 U.S. App. D.C. 339, 401 F.2d 404 (1968) this Court was precise in describing its role in review of agency action:

We are therefore confronted at the very threshold of this case with the ever-recurring question of the scope and extent of our authority to set aside the ruling of an administrative agency. Despite our daily diet of challenges to administrative agency action and our resulting repeated efforts to articulate the limits of judicial review of such actions we nevertheless are continually called upon to substitute our judgment on factual issues for that of the agency charged by Congress with the initial responsibility of making, evaluating, and acting upon those facts. It is well settled that the fact-finding function is within the exclusive province of the administrative agency. We appear unable to establish a substantial recognition at the Bar that "[t]he judicial function is exhausted when there is found to be a rational basis for the conclusions ap-

proved by the administrative body.' *Rochester Telephone Corp. v. United States*, 307 U.S. 125, at 146, 59 S.Ct. 754, at 765, 83 L.Ed. 1147 (1939). [401 F.2d at 407]

And in *American Export Isbrandtsen Lines v. FMC*, 127 U.S. App. D.C. 62, 380 F.2d 609 (1967), this Court described the weight to be accorded expert administrative judgment:

The Commission, as an expert administrative agency, has told us that the fearful results foretold by the conferences will not come about. We respect this judgment grounded in administrative expertise, as we must, *Consolo v. Federal Maritime Commission*, 383 U.S. 607, 621 (1966). [380 F.2d at 620]

*Consolo* is the controlling and definitive statement:

In effect, the standard of review applied and articulated by the Court of Appeals in this case was that if 'substantial evidence' or 'the substantial evidence' supports a conclusion contrary to that reached by the Commission, then the Commission must be reversed. This standard is not consistent with that provided by the Administrative Procedure Act.

Section 10(e) of the Administrative Procedure Act (60 Stat. 243, 5 U.S.C. § 1009(e) (1964 ed.)) gives a reviewing court authority to 'set aside agency action, findings, and conclusions found to be (1) arbitrary, capricious, [or] an abuse of discretion . . . [or] (5) unsupported by substantial evidence . . . .' Cf. *United States v. Interstate Commerce Comm'n*, 91 U.S. App. D.C. 178, 182-184, 198 F.2d 958, 963-964, cert. denied, 344 U.S. 893. We have defined 'substantial evidence' as 'such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.' *Consolidated Edison Co. v. Labor Board*, 305 U.S. 197, 229. '[I]t must be enough to justify, if the trial were to a jury, a refusal to direct a verdict when the conclusion sought to be drawn from it is one of fact for the jury.' *Labor Board v. Columbian Enameling & Stamping Co.*, 306 U.S. 292, 300. This is something less than the

weight of the evidence, and the possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency's finding from being supported by substantial evidence. *Labor Board v. Nevada Consolidated Copper Corp.*, 316 U.S. 105, 106; *Keele Hair & Scalp Specialists, Inc. v. FTC*, 275 F.2d 18, 21.

Congress was very deliberate in adopting this standard of review. It frees the reviewing courts of the time-consuming and difficult task of weighing the evidence, it gives proper respect to the expertise of the administrative tribunal and it helps promote the uniform application of the statute. These policies are particularly important when a court is asked to review an agency's fashioning of discretionary relief. In this area agency determinations frequently rest upon a complex and hard-to-review mix of considerations. By giving the agency discretionary power to fashion remedies, Congress places a premium upon agency expertise, and, for the sake of uniformity, it is usually better to minimize the opportunity for reviewing courts to substitute their discretion for that of the agency. These policies would be damaged by the standard of review articulated by the court below. [pp. 618-621]

In *Nor-Am Agricultural Products, Inc., et al. v. Clifford M. Hardin, et al.*, No. 18,478 (7th Cir. July 15, 1970), the Court of Appeals held that the scope of judicial review of a decision of the Secretary of Agriculture on the issue of whether a registration for a pesticide should be suspended upon the ground that the product's continued use constituted an imminent hazard to the public was to determine whether the Secretary's action was arbitrary and capricious. That Court additionally concluded that the term "imminent hazard to the public," as used in the Federal Insecticide, Fungicide, and Rodenticide Act, is to be interpreted as is almost identical language in the Food, Drug, and Cosmetic Act, 21 U.S.C. § 301, *et seq.* In considering the Drug Amendments of 1962, the Senate Committee, the Court pointed out, contemplated that the power of suspension would be exercised only in the exceptional case of

an emergency which did not permit the Secretary to correct it by other means (Slip Op. p. 18), and the Court interpreted the intention of the House Committee to be:

Similarly the House of Representatives Report on the same provisions stated in part that it would be expected that in exercising the imminent hazard authority the Department would make every effort, within the limits of its public responsibility, to notify the applicant and allow him to advance arguments why summary suspension was not required, or after suspension has been invoked, why it might safely be withdrawn pending the hearing. H.R. Rep. No. 2464, 87th Cong., 2d Sess. 8-9 (1962). [Slip Op. pp. 18-19]

**(b) The Secretary's Findings Are Supported by the Record**

This Court, then, must determine whether there is in the limited record before it, such "evidence as a reasonable mind might accept as adequate to support" the Secretary's findings. The record shows clearly that DDT is a thoroughly studied compound, that its effects on man and his environment have been explored in depth and that ongoing studies continue to add to this large store of knowledge.

It is not possible for this Court to ascribe varying degrees of weight to the several hundred papers listed in the bibliographies. Nor can this Court undertake on this record to interpret the significance of the data nor to balance the highly sophisticated risk-benefit equation.

The Secretary's findings are more than adequately supported by the record. In-depth studies conducted by outstanding scientists on recent Government appointed commissions have reached the same conclusions.<sup>1</sup> These alone

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<sup>1</sup> See, Report of the Secretary's Commission on Pesticides and Their Relationship to Environmental Health (Selected Portions Reprinted at Supp. App. 282); Report of the President's Science Advisory Committee, "Use of Pesticides" (Supp. App. 603); National Research Council, Division of Biology and Agriculture, "Report of Committee on Persistent Pesticides" (May 1960) (Supp. App. 609).

are compelling evidence that the Secretary's findings should be affirmed.

If any one thing is apparent from this record, it is that not all scientific research is of the same quality and not all persons with appropriate degrees are equally capable of interpreting the research and understanding its significance. This Court is not in a position to place varying weights on the over four hundred literature references which have already been cited to the Court. The weight to be ascribed to the particular scientist, to the validity of his protocol in the research study, and the interpretation of the results may alone determine whether there is substantial evidence to support the Secretary's action. In the emotionally charged atmosphere of the DDT controversy, a number of scientists have long since left the role of pure science and have become advocates for a point of view.

While a scientist is not disabled from advocating a predetermined position, when he takes this step he relinquishes something of his right to command acceptance of his work by the scientific community and must be viewed as an advocate marshalling evidence to support his conclusions. For example, "the impressive evidence" referenced by this Court in its May 28 decision consists of a list of references put together by Dr. Charles Wurster, the Chairman of the Scientific Committee of the Environmental Defense Fund. Notably, his bibliography cites his own work frequently along with others who have stated on many occasions that DDT must be eliminated. The references are selective and designed not to reflect the present knowledge but to support an announced conclusion. This presentation cannot overcome the substantial support in the record for the Secretary's findings. String citations in the manner of *Corpus Juris Secundum* add no weight to the contentions.



## BACKGROUND

DDT came into use during World War II; its discoverer, Dr. Muller, being honored with the Nobel prize for chemistry as the result of the discovery of this compound. DDT replaced a number of chemicals then in use for pest control, including the heavy metals, arsenic, mercury and lead which persist in the environment permanently, far beyond residues of DDT. Each of these heavy metals is highly poisonous to humans and animals on an acute and cumulative basis.

Millions of pounds of DDT were used shortly after World War II by American forces throughout the world to avoid catastrophic disease outbreaks in countries disrupted by war and its aftermath. There is no reference in the literature cited in the record which indicates any adverse health impact on human beings as a result of these widespread and extremely heavy applications of DDT. Twenty to twenty-five years is certainly a maximum incubation period for human cancer, mutagenicity, liver damage, and all of the other frightening disabilities which EDF charges DDT inflicts upon human beings. Evidence of its generally accepted safety record is testified to most strongly by the largest single user of DDT in the world, the World Health Organization. Because of the widespread use of DDT following World War II, the United States Public Health Service undertook an extensive program to examine the effect of DDT on human beings.

DDT was fed to human volunteers in a Federal prison by a Public Health Service doctor, Wayland J. Hayes, M.D., at levels up to 35 milligrams per day to be contrasted to the daily intake of a human being in the United States of .062 milligrams in 1965 to .065 milligrams in 1968 (Supp. App. 368). While experimental data from human beings are very rare indeed and it is usually necessary to predict from animal data the effect of the chemical

on human beings, the fact that there is human experience data with DDT overrides theoretical data achieved under laboratory conditions with exceptionally high doses.

A second study was conducted in which the same doses were given for 21 months and the volunteers were observed for a minimum of 27 additional months.

The scientific community was concerned not only with the relation of pesticide use to human health but also to fish, wildlife, water resources and other aspects of the environment.

Public attention on pesticides was accelerated with the publication of *Silent Spring* by the late Miss Rachel Carson in 1962.

In May 1963, President Kennedy's science advisor, Dr. Jerome Wiesner, prepared a report released by the White House, "The Use of Pesticides," which reflected a study of the Life Sciences Panel of the President's Science Advisory Committee (Supp. App. 608). Immediately thereafter, the Subcommittee on Reorganization of the Senate Committee on Government Operations, under the Chairmanship of Senator Abraham Ribicoff, undertook a series of hearings on Environmental Hazards (pesticides).

Dr. Wiesner and the late Miss Rachel Carson were among the prominent witnesses appearing before the Committee (Hearings, Subcommittee on Reorganization and International Organizations, Committee on Government Operations, 88th Cong., 1st Sess. (1963-64)). After three years of study the Committee issued its comprehensive report, "Pesticides and Public Policy" (S. Rep. No. 1379, 89th Cong., 2d Sess. (1966)), based upon extensive study by a professional staff, 1,727 pages of hearing record and the testimony of 67 witnesses. The Committee expressed the hope "that this report will serve as a basis for renewed efforts to bring the understanding of our environment up to a level equal with the ability to alter it." (S. Rep. p. 3)

The Report described the emotional climate concerning the use of pesticides, a condition created as much by noise levels as fact, a condition as evident today as in 1966.

The reservoir of apprehension in the public mind evolves from three signs of our time: (1) The lack of understanding of science leading to distrust and actual dislike; (2) nostalgia for a simpler life, the good old days, and the 'peaceable kingdom;' and (3) a feeling of individual incompetence to avoid the threats of technological side effects (e.g., helplessness against community aerial spraying, unknown source of food stuffs, and total reliance on governmental control and regulation). This anxiety (amounting to fear) is a barrier to facts and presents a bad climate for decisionmaking. [S. Rep. p. 50]

Following this three-year study, the Committee reached several pertinent conclusions:

As a result of the voluminous testimony and additional investigations, the committee reached several conclusions about the state of the benefit-risk equation. These conclusions point up the vital role of reliable information and how the extent of the public's awareness of the knowledge that is available can affect the debate and resolution of public policy questions of this type.

*First, the quantity and quality of empirical information as to both the benefits and risks of chemical pesticides available to scientists and administrators in Government agencies, academic institutions, and private industry was far more extensive than was generally recognized. Thus, predictions of impending disaster aroused great anxiety, not because there was insufficient evidence available to challenge these prophecies, but because the public was simply not sufficiently aware of the existence of this information. [Emphasis added]*

*Second, the committee found no reliable evidence to suggest that the benefit-risk equation was presently unbalanced in any significant way. [S. Rep. p. 65]*

Partly as a response to this Committee's examination of the pesticide subject, the pesticide monitoring programs of the Federal agencies were formalized under the Federal Committee on Pest Control. Publication of the Pesticide Monitoring Journal commenced in 1967 to assure the widespread dissemination of the results of this and other related research.

### FEDERAL MONITORING PROGRAMS

An elaborate monitoring program has been structured by several Federal agencies to provide a current and continuous flow of information to regulators on the state of pesticide residues in all aspects of our environment. Each program determines the residues of DDT, DDE, DDD, and other pesticides in the sampled subject. Studies include humans, fish, birds, food, feed, water, soil, and air. The results of each program are regularly published in the "Pesticides Monitoring Journal" under the auspices of the Federal Committee on Pest Control.<sup>2</sup>

#### *—Human Beings*

The United States Public Health Service has established Community Health Profile Studies in communities located in areas of heavy pesticide use in Arizona, California, Colorado, Florida, Hawaii, Idaho, Iowa, Louisiana, Michigan, Mississippi, New Jersey, South Carolina, Texas, Utah, and Washington.

The National Human Monitoring Program has as its purpose the determination, on a national scale, of the levels and trends of pesticide chemicals in the general human population. Under this plan, 1,950 samples of adipose tissue are collected annually from 39 participating pathologists. Also, 14 technical

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<sup>2</sup> On December 29, 1969, the Federal Committee on Pest Control was replaced by The Committee on Pesticides of the Environmental Quality Council. (M. App. 7) Some portions of these Reports are printed in the Supplemental Appendix (425, 429, 430, 431).

assistance or demonstration projects in State Health Departments collect tissue samples for human monitoring. These cooperating states are Alabama, Arkansas, Illinois, Kansas, Kentucky, Maine, Montana, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Dakota, and Tennessee.

—*Food and Feed*

A continuing Market Basket Study to determine pesticide residues in food sold in retail stores is conducted by the Food and Drug Administration. Five geographical areas of the United States are used to assure representative sampling. Bimonthly, baskets are filled with 120 items representing a two-week food supply for our largest individual consumer—a 16-19 year old male. Each item is examined for residues of pesticide chemicals (Supp. App. 368). See "Pesticide Residues in Total Diet Samples," *Pesticides Monitoring Journal*, 1:11 (1968).

The 17 Field Districts of the Food and Drug Administration examine some 12-15,000 samples of food or crops at their origin.

The meat and poultry surveillance program is administered by the Department of Agriculture. Approximately 3,500 samples of meat and 3,000 samples of poultry from 1,200 major processing centers are analyzed each year.

—*Hydrologic Environment*

The current design provides for a continuing assessment of the general levels of pesticides in the nation's water courses and bottom sediments. Samples are taken from 161 sites within the 20 major drainage basins defined by the Water Resources Council. See "Pesticides in Water," *Pesticides Monitoring Journal*, 3:123 (1968).

In addition to water samples, oysters and other shellfish are used since they concentrate pesticides in the water. See "Galveston Bay Pesticide Study—Water and Oyster Samples Analyzed for Pesticide Residues Following Mosquito Control Program," *Pesticides Monitoring Journal*, 1:13 (1967).

—*Air*

Air sampling contemplates 40 to 60 separate areas of the country, though the detailed design has not yet been published.

—*Wildlife*

Duck wings are collected as a part of the annual nationwide survey of waterfowl. Thousands of wings are sent to central collecting points. The wings of mallards and black ducks are used because the combined range of these two species covers the continental United States. Residues are measured to a limit of sensitivity of 0.05 ppm. See "Nationwide Residues of Organochlorine Pesticides in Wings of Mallards and Black Ducks," *Pesticides Monitoring Journal*, 3:115 (1969).

Eagles have been monitored for several years by the Bureau of Sport Fisheries and Wildlife of the Department of the Interior. Analyses of carcasses, livers, and brains are performed by the Patuxent Wildlife Research Center (Supp. App. 425).

Starlings are collected at 44 collection sites widely distributed geographically. Whole body analyses are performed.

The national fish monitoring program is conducted by the Bureau of Sport Fisheries and Wildlife for monitoring pesticide residues in fish. Fifty new stations are being added in 1970 to the original 50 stations. Over 600 samples are completely analyzed

for pesticide residues and polychlorinated biphenyl compounds. See "Organochlorine Insecticide Residues in Fish," *Pesticides Monitoring Journal*, 3:139 (1969).

The Bureau of Commercial Fisheries monitors pesticide levels in mollusks monthly at 170 coastal locations in the United States. Samples are analyzed at the Gulf Breeze Laboratory in Florida.

#### —Soils

Soil is one of the most significant storehouses of pesticide residues in the biosphere. The soil monitoring program administered by the Department of Agriculture is designed on the basis of 10-acre sites, one site per 40,000 acres of cropland and one site per 400,000 acres of non-cropland. This rate yields about 13,300 sites, of which one-fourth are sampled each year. See "Organochlorine Insecticide Residues in Soils," *Pesticides Monitoring Journal*, 3:241 (1970), and "An Ecological Study of DDT Residues in Arizona Soils and Alfalfa," *Pesticides Monitoring Journal*, 2:129 (1968).

### FEDERAL REGULATORY PROGRAMS

Before a pesticide may be shipped in interstate commerce it must be registered by the Secretary of Agriculture under the Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §§ 135-135k (1964). The registration procedure is formalized in an Interdepartmental Agreement for Protection of the Public Health and the Quality of the Environment in Relation to Pesticides.<sup>2</sup> (M. App. 1)

An application for registration is transmitted to the Department of Health, Education, and Welfare for consid-

<sup>2</sup> This Agreement replaced the Interagency Agreement published in 1964, 29 F.R. 5909 (1964). This procedure may be shortly superseded if the Environmental Protection Agency is established under the President's Reorganization Plan No. 3 (1970).



eration and review to assure protection of the public from health, occupational and environmental hazards; to assure that residues of the product on raw agricultural commodities are within a safe tolerance (21 U.S.C. § 346a); and for other public health aspects such as the control of diseases and their vectors. The application for registration is also referred to the Department of the Interior to assure the protection of the quality of the nation's waters including determining the effects of the pesticide in water on health, welfare, and aquatic life; and to assure the conservation of wild birds, fish, mammals, their food organisms and their environment as affected by pesticides and the appraisal of effects of pesticides on fish and wildlife.

If the product is found to meet the requirements of FIFRA, it is registered.<sup>4</sup> Thus, the manufacturer has the clear burden of proof to establish that the product complies with the Act. The statute requires that the product bear a label showing directions for use "which are necessary and if complied with adequate for the protection of the public;" and "a warning or caution statement which may be necessary and if complied with adequate to prevent injury to living man and other vertebrate animals, vegetation and useful invertebrate animals." 7 U.S.C. § 135 (Z)(2)(c)(d) (1964).<sup>5</sup>

Cancellation of a registration is authorized whenever it appears that the product or its labeling or other material required to be submitted does not comply with the provisions of the Act, (4)(c). The burden of proof of compliance remains with the registrant contrary to the allega-

<sup>4</sup> Pesticides are required to be registered by state law in 48 states. Only Delaware and Indiana do not require registration. Most of these states require registration annually.

<sup>5</sup> The regulations, 7 C.F.R. § 362.2, define vertebrate animal to mean "all species subphylum vertebrata including domestic vertebrates and vertebrate species of fish and wildlife" and invertebrate animals to mean "all forms of animal life other than vertebrate animals, including both domestic and wild species."

tion that the Secretary placed the burden of proof on EDF. (Pet. Supp. Br. p. 13) When it appears that a product no longer complies with the Act, the burden of proof is placed squarely on the registrant by issuance of a notice of cancellation or, if it presents an imminent hazard to the public, notice of suspension. The predicate, of course, is that evidence appears that a pesticide, once determined to be in full compliance with the Act, is no longer in compliance. There is no reliable evidence before the Secretary to justify or support such a conclusion.

### **THE MRAK COMMISSION REPORT**

EDF relies heavily on the Report of the Secretary's Commission on Pesticides and Their Relationship to Environmental Health (The Mrak Commission Report). This Commission was appointed by then Secretary Finch of the Department of Health, Education, and Welfare. The Commission consisted of 13 leading scientists and Mrs. Virginia Knauer, Special Assistant to the President for Consumer Affairs. The Report comprises 677 printed pages. The Commission considered the Innes Report in considerable detail. EDF relies upon this Report:

The evidency of carcinogenicity upon which Petitioners rely is found in the comprehensive 'Innes Report' of the National Cancer Institute. [Pet. Supp. Br. p. 20]

The Mrak Commission did not take exception to the conclusions of this study but emphasized:

This study has demonstrated that DDT increased the incidents of cancer in mice under the experimental conditions employed. However, this does not prove carcinogenicity for human beings at the very much more lower levels to which they are actually exposed. [Mrak p. 471] (Supp. App. 297)

But perhaps the best evidence of the ultimate position of the Mrak Commission is contained in a letter from Dr.

Mrak (M. App. 14), dated June 17, 1970, which, in its entirety, states:

I am enclosing a copy of a statement which indicates clearly my feelings about the banning of DDT in total. I think this would be a very tragic and unfortunate thing to do.

You may use this statement in any way you wish.

#### **The Role of DDT in Public Health**

DDT has played a major role in the protection of the public health throughout the world. As shown in the Affidavit in support of Montrose's Petition to Intervene, by far the largest user of DDT in the world is the World Health Organization. EDF contends that DDT is no longer needed in the United States to control disease vectors. (Pet. Supp. Br. p. 31)

A number of insect-borne disease vectors have been practically eliminated from the United States to a large extent by massive applications of DDT, but these disease vectors are rampant in other areas of the world. In 1968, 75 million pounds out of 125 million pounds of DDT produced in the United States were used for public health purposes by WHO. In 1969, it was reported that 90 million pounds of technical DDT were used in the world campaign against malaria.

In 1933, there were over 100,000 cases of malaria reported in the United States (M. App. 19). By 1960, this had fallen to less than 100 cases but, as a result of returning Vietnam veterans, the incidents rose to an excess of 3,000 cases in 1969. For the first 22 weeks of 1970, 1,428 cases of malaria were reported in the United States (M. App. 20). EDF states categorically that encephalitis is a rare disease in the United States (Pet. Supp. Br. p. 47). In the first 22 weeks of 1970, there were 432 cases of encephalitis reported in the United States compared to 425 cases for the first 22 weeks of 1969 (M. App. 20). This is hardly

a rare disease and is a disease transmitted by the mosquito, controlled effectively by DDT. Whether the mosquito can be satisfactorily controlled by malathion, as contended by EDF (Pet. Supp. Br. p. 47), is a judgment that requires examination of a number of factors which can be and should be evaluated only by scientists of a broad range of disciplines. Aerial spraying for control of the mosquito is necessary in an encephalitis outbreak and some residual activity is an important characteristic of the material of choice.

When one seeks the aid of a court to order an immediate prohibition of the distribution of a chemical which is relied on in many parts of the world to control and minimize serious disease vectors, that party takes on an obligation far heavier than the normal obligation of advocacy. Vigorous contention for a position is anticipated in a usual advocate's presentation. But where, as here, the impact of a court's order sustaining EDF's demands would cripple major disease control programs in the world, full disclosure is demanded and is absent from EDF's brief. Suspension of all registrations for DDT would suspend all interstate shipments.\*

Those suffering and dying from malaria, yellow fever and a host of other insect-borne diseases in Central America, South America, Asia, India, and the Near East are not represented before the Court. No private Attorney General appears to represent their interests. The World Health Organization will not become involved in domestic politics or judicial proceedings.

The role of DDT in malaria control and eradication has been reported by the National Communicable Disease Center of the Department of Health, Education, and Wel-

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\* "It shall be unlawful for any person to distribute, sell or offer for sale . . . or to ship or deliver for shipment from any state, territory, or the District of Columbia to any other state, territory, or the District of Columbia or to any foreign country . . . (1) any economic poison which is not registered pursuant to the provisions of Section 4 of this Act. . . ." [7 U.S.C. § 135a(a) (1964)]

fare in a paper entitled, "DDT in Malaria Control and Eradication," July 25, 1969. (Supp. App. 314) The highlights of this report are that as late as 1951 it was estimated that there were some 350,000,000 cases of malaria occurring annually, with some 3,500,000 deaths. By 1959, substantial eradication of malaria had been achieved in areas including the United States, Europe, portions of Russia, Singapore, Chile and several islands in the Caribbean.

The unparalleled benefits stemming from the accomplishments of the malaria eradication program to date are due almost entirely to the use of DDT. In past years, small quantities of dieldrin and benzene hexachloride were used in some country programs, but vector resistance to these compounds quickly appeared and their use was soon abandoned. House spraying with DDT has always been the main eradication tool, and still is today. Its use is the only safe, economically feasible eradication measure available today. (Supp. App. 316)

... Further, the persistence of DDT, which is the basis for current objections to its general use, is the essential characteristic that makes it effective as a malaria eradication tool. (Supp. App. 317)

\* \* \*

The safety record for the use of DDT in the malaria eradication program is nothing short of phenomenal. Although billions of pounds of DDT have been used in antimalarial programs during the past quarter of a century, there is no record of illness attributable to DDT resulting directly from the normal spraying operations among either the many thousands of spraymen or the millions of occupants of DDT-treated houses. [*Ibid.*]

\* \* \*

Since the discovery of DDT, many thousands of chemicals have been screened without finding one that can compete with DDT in safety, cost, or residual effectiveness, insofar as malaria eradication is concerned. [*Ibid.*]

\* \* \*

The situation in Ceylon is a prime example of how rapidly and extensively malaria can return to an area if the protection of an active malaria program is not continued until complete eradication. Following a country-wide malaria eradication campaign in the 1950's and early 1960's, the number of confirmed malaria cases reached lows of 31 in 1962 and 17 in 1963, when full-scale house spraying was partially withdrawn, and subsequently terminated, in 1964. The cases increased annually thereafter, numbering 150 in 1964, 308 in 1965, 499 in 1966, and 3,466 in 1967, most of them occurring in the last few months of that year. In 1968, the epidemic flared rapidly—16,493 confirmed cases being reported in January and 42,161 in February. No DDT supplies were on hand with which to reinstate the house spraying program on the wide scale needed, and months were required for the procurement and delivery of them. As a result, more than a million cases of malaria occurred throughout the country in 1968. The wide distribution and high numbers of cases will, in effect, require the carrying through of another nation-wide eradication program, based on DDT house spraying. Fortunately, the type of malaria involved in the Ceylon epidemic was mostly the so-called benign type, which generally has a low mortality rate.

As the Federal agency responsible for the administration of the U.S.-assisted malaria eradication programs in 18 countries, the National Communicable Disease Center has a deep concern over the potential impact on these programs (as well as on the current and needed future programs in the rest of the world) of the current controversy over the use of DDT within the U.S., in which references have been frequently made to the possible banning of both use and production of DDT in the U.S. For the remaining malarious areas of the world, the banning of DDT production would have catastrophic and tragic consequences which do not seem justified by the available facts. Although DDT has been studied more extensively in man than any other known insecticide, no concrete evidence has been presented that it presently constitutes any health hazard to man, even among industrial production workers

whose daily exposure to it for two decades has greatly exceeded that of the general public. Its use record, with respect to human safety, is unparalleled in the history of insecticides. (Supp. App. 319)

The Court then must be most sensitive to the effect of EDF's demands upon human welfare and the quality of human life.

EDF states, predictably, that substitutes for DDT are readily available. Deceptively simple, this conclusion ignores the many values that must be weighed in judging substitute materials. A case in point, for illustration only, may be helpful.

The gypsy moth was introduced in the United States accidentally by a scientist in 1869. By 1889, forests and residential trees were being defoliated over 360 square miles. Lead arsenate, a highly toxic, persistent material was used to combat the gypsy moth. With the advent of DDT, this material was used in preference to lead arsenate with highly effective results. The Environmental Defense Fund was founded in Suffolk County, New York and still retains its principal offices there. Through its efforts, DDT was banned in Suffolk County. The alternate material, Sevin, is not persistent but does give some control of the gypsy moth. However, it must be applied precisely at the right time during the life cycle of the insect, specifically the start of the feeding of the moth larvae. Spraying must be repeated every ten days and more frequently in rainy weather. The results of the non-chemical and non-DDT control program are dramatically illustrated in the New York Times of June 24, 1970. For its Quotation of the Day, the Times printed the following statement:

#### QUOTATION OF THE DAY

We are in a state of emergency. Our children cannot go out. Our pools are finished for the summer. It's a question of survival—the caterpillars or us.—Mrs. Helene Gaylord of Shirley, L.I., calling for action against a gypsy moth infestation in Suffolk County. (M. App. 99)



On July 2, 1970, the Department of Agriculture announced that gypsy moth defoliation of woodlands occurred this year in New Jersey, New York, and Pennsylvania. Defoliation estimates approach 100,000 acres on Long Island and in Orange, Rockland, Sullivan and Ulster Counties in New York. The New Jersey Department of Agriculture predicted that at least 100,000 acres would be defoliated this year, more than double last year's acreage. The pesticide Sevin was used to attempt to control the gypsy moth in New Jersey. In 1969, the gypsy moth defoliated 260,000 acres of northeastern woodlands, more than three times the acreage stripped during 1968. The Department's report continues:

Until 1958, plant protection officials had hoped to eradicate the gypsy moth from the United States. However, the program objectives were changed to containment when large scale spraying to eradicate the gypsy moth was discontinued. Since then, the numbers of acres becoming infested annually has steadily increased. (M. App. 104)

The effect of this defoliation is described in the Department's statement:

In their caterpillar form, gypsy moths strip the leaves from forest, shade, and fruit trees, as well as ornamental shrubs. By defoliating forests, they increase fire and erosion hazards, adversely affect stream flow, reduce land and recreational values, and destroy wildlife habitats. ARS plant protection officials point out that a single defoliation has been known to kill white pines, spruce, and hemlock. Two defoliations can kill most hardwoods. (M. App. 104)

It is thus critically important to evaluate the consequences of removing a product such as DDT from the market. The risks are understood and can be balanced with the benefits in the use of the product. When one blindly seeks to eliminate a useful chemical without regard to the effect of this action on human health, our forest resources,

wildlife habitats and other environmental factors, the consequences of the withdrawal of the chemical might be far more severe than the risks to be anticipated in its proper use.

### ESSENTIALITY OF DDT

On June 10, 1970, the Special Review Group on DDT Registrations appointed by the Secretary of Agriculture submitted its report on those uses of DDT which are essential at this time for the production of crops. (Supp. App. 602) The letter of transmittal from the Chairman of the group states:

At the present time there is no known safe, effective substitute for DDT on these crops for control of the indicated pests.

This extensive report lists 51 specific uses of DDT deemed to be essential and also contains recommendations for eliminating a number of currently registered uses of DDT. EDF does not reference this report in its brief and completely ignores its contents by alleging that DDT is not needed in the United States for food crops and other farm use.

Sweden was the first country to ban the use of DDT. The ban became effective on January 1, 1969. On December 5, 1969 (M. App. 21), the Swedish National Poisons and Pesticides Board announced authorization for the use of 6 to 7 tons of DDT for the control of the large pine weevil which, it was estimated, would cause \$20,000,000 in damage to the forest and seedlings. This exhibit points out that no replacement for DDT has yet been found to combat the large pine weevil and it is probable that an exemption will be requested again next year.

Similarly, in the Province of Ontario, Canada, severe restrictions were placed on the use of DDT, effective January 1, 1970. On June 11, 1970, the Ontario Minister of Agriculture announced permission to use DDT to eliminate the

cutworm infestation threatening the \$2,500,000 onion crop in Ontario. (M. App. 23) This exhibit reflects the statement of Ontario Health Minister Thomas Wells that he had agreed to the use of DDT since it is the only effective thing for a very urgent problem.

Thus, in addition to public health needs there are a number of essential uses of DDT remaining. Non-essential uses have been phased out. (Supp. App. 53) Alternate materials are not simply materials which will control the particular insect. EDF contends (Pet. Supp. Br. p. 34) that chemical alternatives include parathion and methyl parathion. Parathion is highly toxic to man and animals and must be labeled with elaborate warnings including, "Poisonous if swallowed, if inhaled or absorbed through the skin." (Int. 18. Rev. 2, 7 C.F.R. Pt. 362). DDT is not highly toxic and is not labeled "POISON." All characteristics of available materials must be weighed when considering alternates.

#### REPLY TO EDF BRIEF

The supplemental brief for the EDF is a skilled presentation of its position. Charges are repeated throughout the brief, perhaps in an effort to lend some evidentiary weight to the contentions. At times the charges are qualified, and at times not. For example on page 10, the statement is made:

Carcinogenesis in these animals indicates a high probability, but not a certainty, that DDT is a human carcinogen.

The brief promptly leaps from the probability qualification to such statements as that:

DDT is a carcinogen; [Pet. Supp. Br. p. 13];

The evidence is that DDT is a carcinogen [Pet. Supp. Br. p. 24];

that DDT is causing cancer and other health problems [Pet. Supp. Br. p. 45].

As is shown herein, the evidence that DDT causes cancer in test animals is highly speculative and involves dosage levels far exceeding anything that can be encountered by man. While it is not possible to analyze and reply to every document referenced by EDF, it is also not necessary since the Court is concerned principally with the evidentiary basis upon which the Secretary has acted. Nevertheless, some of the charges are so sensational as to justify a reply.

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1. Mobility—DDT is a mobile material once it has been released in the environment. It leaves the site of application and is carried by air and water to all parts of the world. [Pet. Supp. Br. p. 7]

3. Solubility Characteristics—DDT has a very low solubility in water, but a high solubility in lipid or fatty tissues (Bibli. 20, 60, 139; Supp. App. 142). Since all organisms contain lipids, they accumulate DDT from the inorganic environment in which they live and retain it in their [t]issues [sic]. Non-target organisms, including man, all over the world have therefore become contaminated with its residues. (References omitted). [*Ibid.*]

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Dr. Richard T. Rappolt, Sr. Toxicologist with the San Francisco Public Health Service has put some of these allegations into focus:

ALLEGATION:	DDT is highly mobile in water.
FACT:	The solubility of DDT in H <sub>2</sub> O is 1.2 parts per BILLION.
ALLEGATION:	In that case, DDT codistills with H <sub>2</sub> O carrying it all over the world.
FACT:	The vapor pressure of DDT is 0.2 mm Hg (760 mm Hg is one atmosphere) at 125°C (255°F).
QUESTION:	How then does DDT get into the ocean food chain off the Los Angeles coast?

- ALLEGATION:** Human urine.
- FACT:** DDA is high in human urine only in DDT plant workers, the majority of the chlorinated hydrocarbon residue comes from garbage disposal units that eject meat trim and other food stuffs into the ocean-bound sewage system.
- ALLEGATION:** DDT is an enzyme inducer.
- FACT:** Correct, as are petroleum distillates, diphenylhydantoin, barbituric acid compounds, and lactose, which if memory serves me was found in mother's milk. To mention enzyme inhibitors, as a didactic exercise, two come to mind, anti-histamines and organic phosphates.
- ALLEGATION:** DDT is laid down in human fat forever.
- FACT:** DDT is laid down in human fat, which has in itself a 100% turnover rate in less than a year plus the half-life of DDT in adipose tissue is approximately 3-6 months. In fact, DDA excretion in DDT plant workers can be increased by administration of 500 mg glutethamide at h. s. (Rappolt, unpublished reports: California Community Studies on Pesticides 1966).

The published scientific research generated by the California pesticide study was gleaned from Kern County, which has one of the heaviest pesticide inputs per square mile in the world. With the full cooperation and access to the files of the Kern County Agricultural Commissioner, it was found that in 1964-1965 there were 118 different generic chemicals applied and of these 42 had a higher short-term toxicity than DDT. Among these compounds and others were found: nico-

tine, compounds of arsenic (known carcinogens), calcium cyanide, TEPP and parathion (essentially nerve gases), strychnine, sulfuric acid, and other interesting materials such as: plant hormones, Veratrine veride, a botanical anti-hypertensive agent, streptomycin, an ototoxic antibiotic, and a bacteria *Bacillus thuringiensis* berliner. Where were these journalistic scientists and their pronouncements over these more toxic or poorly studied compounds, drugs, and organisms? (Clin. Toxicol., Mar. 1969).

Later more "newspaper scientists" implied that the apparent increase in cancers of the blood and blood-forming organs were a direct result of pesticide residues in our food and environment. A meticulous, year-long search and analysis of death records for 10 years in Kern County and California as a whole failed to reveal such a relationship (California Medicine, Sept. 1967). This particular epidemiological study was cited by the Journal of the American Medical Association with a feature article: Increased Pesticide Use Statistically Unrelated to Neoplasm Mortality Rates in California.

Still later, a review by myself indicated that DDT and a contaminant DDD had been used in the U.S. to eradicate the insect vectors of bubonic plague, yellow fever, malaria, encephalities, and typhus. Also DDD had been used on humans for remission of Cushing's Syndrome (Nebraska State Med. J., July 1967). Recently I've been using 5 gm of technical grade DDT as an enzyme inducer internally for human barbiturate intoxications. (M. App. 24)

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There is no evidence to the contrary: Respondents must assume DDT is carcinogenic in man and thus an imminent hazard to the public. [Pet. Supp. Br. p. 18]

The evidence of carcinogenicity upon which Petitioners rely is found in the comprehensive "Innes Report" of the National Cancer Institute. [Pet. Supp. Br. p. 20]

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The valid evidence is to the contrary:

Dr. Wayland J. Hayes, Jr. Professor of Biochemistry at Vanderbilt University and former Public Health Service physician reviewed the "Innes Report" and concluded:

Unless more convincing evidence is obtained than that reviewed above, I conclude that Dr. Lehman was correct. DDT is not a carcinogenic. (M. App. 31)

The status of the Innes paper is qualified in its very title "A Preliminary Study." Even a casual review of this report reflects that EDF has relied upon a very thin read. Table 2 shows that the daily dose for periods approximate lifetime of the mouse, 18 months, was 46.4 mg./kg. Translated into equivalent terms of a human being's lifetime, an average human would have to consume enormous amounts of DDT to equal the dose which was given to the mice. Stated another way, the dose is about 40,000 times the current levels in the human food diet. Dr. Hayes' comments on the "Innes Report" deserve careful study.

Innes *et al.* (1969) reported that the tumorigenicity of selected pesticides and industrial compounds was tested by continuous oral administration to both sexes of two hybrid strains of mice, starting at the age of 7 days. The chemicals were given by stomach tube until weaning and thereafter as a mixture in the diet. Maximal tolerated doses were given for the entire period of observation, about 18 months. The authors stressed that the dose received by the mice was far in excess of that likely to be consumed by humans. One of the compounds that gave a statistically significant positive result was DDT. The incidence of tumors was comparable to the mean tumor incidence produced by a group of positive control compounds, most of which are weak or even questionable carcinogens of no demonstrated importance to human health. The authors made no distinction between hepatomas and carcinomas. It is difficult to understand why, in denying the practicality of making this important distinction, they entirely neglected the matter of reversibility. A full account of the study is promised later. In the mean-



time there is no assurance that the small number of tumors observed in mice exposed to DDT were different from the "nodules" described by Fitzhugh and Nelson in 1947. Furthermore, the entire testing scheme was adopted in the hope of achieving greater sensitivity, but no responsibility has been taken for measuring its biological significance. There is no assurance that the same test would not give positive results for some common items of the diet such as spices, caffeine, or even table salt. (M. App. 30)

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Human victims of terminal cancer contained more than twice the concentration of DDT residues in their fat as did victims of accidental death. [Pet. Supp. Br. p. 21]

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This conclusion is not only predictable but expected. Cancer is a debilitating disease and victims of terminal cancer usually show considerable weight loss and would thus have much less fat in their bodies than a person in good health. Note that even the contention in the brief is only that the residues were detected in the fat and not in vital organs. Again Dr. Hayes' analysis explains these results.

Radomski *et al.* (1968) reported that the concentration of DDT and/or DDE was increased in the body fat of people who died of primary malignancy of the liver, metastatic malignancy of the liver, leukemia, carcinoma of various other organs, toxic hepatitis, portal cirrhosis amyloidosis, arteriosclerosis, encephalomalacia, and hypertension. The comparison was made with generally younger people killed by automobiles, gunshot and other accidents. Although minor increases of one or both of the compounds were found in the liver or in the brain in some of the conditions listed above, the authors pointed out that their major conclusions were based on the concentration of pesticides in adipose tissue, not on the concentrations in liver or brain. In one sense no conclusion was reached but it was suggested that the increased pesticide concentration might have been the cause of disease or that disease might have been the cause of increased concentration. If, in fact, DDT were the cause of various

fatal diseases other than poisoning, then many of the workers studied by Laws *et al.* (1967) would have died long ago, for they have been exposed as long as other Americans and for 19 years at levels leading to storage very much higher than any observed by Radomski *et al.* Actually, what Radomski *et al.* observed is readily explained by the debilitating increase in the concentration of DDT and DDE in the fat that remains. The authors stated that no correlation was found between the elevated pesticide levels and the length of stay in hospital or with inanition. Unfortunately, length of hospital stay has no bearing on the matter because many people suffering from debilitating diseases receive only terminal hospital care. No correlation would be expected. Furthermore, any meaningful correlation with weight loss would have to be based on medical records of the degree and rate of loss. The way in which the authors gathered their information on weight loss guaranteed it would be meaningless.

Unless more convincing evidence is obtained than that reviewed above, I conclude that Dr. Lehman was correct. DDT is not a carcinogen. (M. App. 30, 31).

Finally, one of the co-authors of the Radomski Report, William B. Deichmann, Ph.D., is a member of the American Medical Association's Committee on Toxicology which reported in May, 1970, that the carcinogenicity of DDT to man is a speculation as yet unproved. (Supp. App. 631)

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Because experimentation with human subjects is difficult or impossible, and raises serious moral and ethical problems, laboratory animals are normally used as substitutes. [Pet. Supp. Brief p. 21]

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We agree that experimentation with human subjects is clearly the most preferable and that such data are usually extremely rare. This is not true with DDT; in fact there is an impressive volume of data resulting directly from studies of human beings which clearly overrides hypothetical extrapolation of animal data. Dr. Wayland J. Hayes, Jr. fed DDT to human volunteers in a Federal penitentiary beginning in 1950 at dosages up to 35 milligrams per day

for periods ranging up to 18 months. Thirty-five milligrams per day is several hundred times the current dietary levels. This report concludes:

No volunteer complained of any symptom or showed, by the test used, any signs of illness that did not have an easily recognized cause clearly unrelated to exposure to DDT. (M. App. 38)

The same result was obtained in a second study in which the same doses were given for 21 months and the volunteers were observed for a minimum of 27 additional months. (M. App. 39)

In 1967, investigators reported on the study of 35 men who were employed for more than 5 years in the Montrose Chemical Corporation plant in California engaged in work involving relatively heavy occupational exposure to DDT. This study was undertaken by a group of physicians with the National Communicable Disease Center of the United States Public Health Service. The group leader, Edward R. Laws, Jr., is now at Johns Hopkins University Hospital, Baltimore, Maryland. These investigators found relatively high DDT concentrations up to as high as 647 parts per million as compared to a national average at that time of 8 ppm for the general population. The study "did not reveal any ill effects attributable to exposure to DDT." (S. App. 387)

In 1958, Dr. Mark F. Ortelee of the United States Public Health Service studied 40 men employed by three firms engaged in the manufacture and/or formulation of DDT. This investigator concluded:

With the possible exception of rare hypersensitivity reactions, it is considered unlikely that any illness or symptom complex identifiable as chronic DDT poisoning exists in people exposed to DDT at the current dietary level because no such effects were found in men exposed for as long as 6.5 years in such a way

that they absorbed an average of about 200 times as much DDT as that absorbed by the general population from their diet. (M. App. 70).

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These studies [Hayes, Ortelee and Laws] only investigated acute toxicity, while Petitioners raise sublethal and chronic toxicity hazards. Respondent's studies could not have revealed cancer, mutagenesis, liver abnormalities and other chronic problems in man. [Pet. Supp. Brief p. 23]

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The dosages fed to the human volunteers and the exposure of the workers were sublethal since all of the subjects survived. The first Hayes' study was concluded in 1953, the Ortelee study in 1958 and the Laws' in 1967. No one could seriously contend that this is not an adequate incubation period for whatever chronic toxicity hazards might exist. And if such chronic toxicity had been revealed to date in any of these subjects, EDF would be emphasizing the evidence to the maximum extent.

Dr. Laws is currently studying the effects of DDT on an experimental cancer in mice.

These studies indicate that under the given experimental conditions, DDT has an inhibiting effect on the growth and development of at least one experimental cancer. [M. App. 73]

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"... and it can reduce the photosynthetic activity of phytoplankton, the organisms that form the base of all marine food chains". [Pet. Supp. Br. p. 28]

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This theory has been demolished by a detailed study performed by the Environmental Science Services Agency and the National Bureau of Standards.

In May, 1966, the late Lloyd Berkner urged the Office of the President's Science Advisor to measure oxygen in the clean atmosphere. He justified his request in a Memorandum for the File, which was prepared jointly with L. C. Marshall and dated 29 April, 1966, entitled "Potential Degradation of Oxygen in the Earth's At-

mosphere." Here it was noted "that fish in the Newfoundland Banks contain significant . . . quantities of herbicides and insecticides." These, it was argued, derive from unicellular organisms, "the grass of the sea . . . Thus, in the absence of more precise information, it must be assumed that the concentration of insecticides and herbicides in the fish of the sea arises from initial concentration by the photosynthetic organisms which are also the primary source of atmospheric oxygen. The problem is whether the herbicides and pesticides concentrated by the basic photosynthetic organisms can affect their population, thereby modifying the equilibrium concentration of oxygen in the earth's atmosphere." Each year about 0.05 percent of the atmospheric oxygen is renewed by photosynthesis of which over 60 percent derives from the oceans. It must be noted that the authors found "themselves in the dilemma that the extent of knowledge so far accessible to them is insufficient to demonstrate whether or not the problem is serious now or in the identifiable future. (M. App. 80)

The investigators collected samples from 1967 to 1970 and measured the oxygen content. They also reviewed the published data from other investigators and concluded: "Since 1910 changes with time over the globe appear to be either zero or smaller than the uncertainty in the measurements". (M. App. 82)

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*Biological Activity*—DDT has a broad spectrum of toxicity and biological activity to virtually all animals and some plants. It is a biocide—not merely an insecticide. [Pet. Supp. Br. p. 8]

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However, when the Secretary cites the increased populations of big game, III-33—III-35, EDF dismisses this fact with a footnote reference:

Two concern big game which are completely irrelevant to this case. [Pet. Supp. Br. p. 30, footnote 62]

The issue thus becomes rather slippery in the hands of a skilled writer and note the charge is made that DDT is

hazardous to *all* animals: factual refutation is dismissed as *irrelevant*.

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Petitioners submitted evidence to Respondents that DDT is causing serious harm to fish and wild-life populations and is a serious threat to the continued existence of certain prized species such as the national bird, the bald eagle, and the peregrine falcon. [Pet. Supp. Br. p. 25]

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The peregrine falcon is usually cited to support the food chain theory since the falcon is one of the best known carnivorous birds.<sup>7</sup> Changes in peregrine populations are attributed to DDT, independent of the fact that the peregrine is still lawful game for hunters in several states (M. App. 106). But here, the Mrak Commission Report supplies a succinct rebuttal:

There have been reports of a number of wild bird species, notably the peregrine falcon and the bald eagle, which are showing declining reproductive success and population numbers. This decline has been attributed to chlorinated hydrocarbon pesticides by some observers (Risebrough, 1969; Wurster, 1969). The estrogenic and enzyme effects noted above indicate a possible mechanism for such an etiology. However, there seems at this time to be a very reasonable doubt that residues of the chlorinated hydrocarbon pesticides are found in the natural feed of these birds at levels equivalent to the dosage necessary to produce these effects. (M. App. 83)

A careful study of DDT residues in peregrines and their prey species further destroys the theoretical basis for EDF's argument. (Supp. App. 413) The peregrine population in Canada bearing significantly higher residues of DDT than peregrines in Wisconsin and in Great Britain were found to be reproducing normally while the British

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<sup>7</sup> The peregrine falcon is more commonly known as the Duck Hawk. In 1925, the National Audubon Society advocated "protection, under all conditions, of rare Hawks, such as the Duck Hawk, . . ." (M. App. 109). The peregrine was a rare bird several years before the first use of DDT.

peregrine population has declined dramatically. The conclusions from this study:

Peregrine Falcon (*Falco peregrinus*) adipose tissue, eggs, and prey species collected along the Peace, Slave, and Mackenzie rivers in Canada were analyzed for organochlorine residues by electron capture gas chromatography. Residues of DDT, DDE, TDE, dieldrin, and heptachlor epoxide in the fat of nine nesting adult female Peregrines averaged 37.3, 284, 39.5, 3.3, and 4.4 ppm (wet basis), respectively, but immature Peregrines caught in migration in September 1966 in Wisconsin have only 0.9, 14.0, 0.6, 0.2, and 0.0 ppm (wet basis) of these same materials. Total residues in 11 birds that are potential Peregrine prey averaged about 1.0 ppm (wet basis) in the whole body, but one bird had about 3.0 ppm. Total residues in seven whole Peregrine eggs averaged 27.1 ppm, about twice that found in Peregrine eggs in Britain. A seemingly normal average of 2.3 viable eggs or young, or both, was found near the time of hatching in the 15 sites that we observed. All these data suggest that adult Peregrines in northern Canada carry high levels of organochlorine residues acquired over a period of many months, that their eggs bear about twice the levels found in eggs from the stricken British Peregrine population, and that even with these precariously high levels the Canadian Peregrines appear to be reproducing normally. (Supp. App. 413, 414).

Respondents, however, have not dealt with Petitioners' point, that DDT is endangering whole fisheries; i.e., populations of commercially valuable fish. [Pet. Supp. Br. p. 29]

EDF's contention here must be speculative and hypothetical. In fact, the reports of the Great Lakes Fishery Commission and the Great Lakes, which undoubtedly would be the most directly affected of commercial fishing sources, show that in 1967 over 127 million pounds of commercial fish of all species were taken from the Great Lakes. By way of comparison, the highest single year for the twenty years prior to the advent of DDT, 1920-1940, was 118



million pounds in 1921. In 1940, 99 million pounds were taken from the Lakes. (Supp. App. 480).

But more persuasive is a review of the reported data on causes of fish kills in the United States in recent years. A summary of the total number of fish reported killed in the United States and the number attributed to pesticides is as follows:

YEAR	Total Reported No. of Fish Killed.	Fish Kill by Pesticides	Percent
1963	6,816,530	401,415	5.8
1964	17,869,714	191,167	1.06
1965	11,393,439	770,557	6.7
1966	8,742,927	217,406	2.4
1967	11,119,051	329,130	2.9
1968	14,826,214	325,194	2.1

(M. App. 87-97)

This summary reflects the number of fish killed from all pesticides not only DDT. The data are not broken down to reflect specific chemicals. These data indicate graphically that if DDT is "endangering whole fisheries, i.e., populations of commercially valuable fish" this catastrophe must be prospective.

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For example, DDT residues are a major hazard to bird populations, causing direct death, reproductive failure and, in some species, catastrophic declines approaching extinction. [Pet. Supp. Br. p. 9]

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Perhaps the most direct reply is by reference to the work of Phillip H. Marvin, (M. App. 100)

Bird populations are increasing. Far from declining during the past 15 years of expanded insecticide use, bird numbers have multiplied severalfold. Entomologists have indicated an interest in figures supporting these statements, hence the statistics and the method of ascertaining the pertinent data are presented in this paper.

Bird watchers all over North America assemble each year in local groups within a week or so of Christmas.

Bird-count data are assembled from these field observations and then recorded in Audubon Field Notes, a publication of the National Audubon Society, co-sponsored by the U.S. Fish and Wildlife Service. This census is known as the The Christmas Bird Count. Arthur A. Allen (1930, p. 303), past ornithologist at Cornell University, wrote, "The Christmas Bird Census, for several reasons produces records of greater accuracy and, therefore, of greater scientific value than similar records made at other times of the year." Allan D. Cruickshank, editor of Christmas Bird Counts, described Audubon Field Notes as "a quick, accurate source of information on population trends." (From letter, seeking subscriptions, dated August 28, 1963). He (Cruickshank 1956) also described the Christmas Bird Counts as "probably the largest organized bird watching activity in the entire world." TABLE 1.—Average annual number of birds of all species counted and average annual number of people participating, plus the average number of birds counted per person.

YEARS	Birds	Observers	Birds per observer
1949-52	8,606,251	5,160 <sup>1</sup>	1,667
1954-57 <sup>2</sup>	23,146,380	6,603	3,505
1958-61	34,253,194	8,511	4,024
1962	44,630,257	9,981	4,471

<sup>1</sup> The number of observers for 1952 was not summarized in Audubon Field Notes. Based on the number for preceding and succeeding years, it was estimated at 6,000 for this table.

<sup>2</sup> Data for 1953 were not summarized in Audubon Field Notes, and are not included here.

These figures show a 5-fold increase in total bird numbers observed during the past decade, occurring despite the greatly increased use of "new" pesticides. Some of the apparent increase may be attributed to the greater number of observers but at least a 3-fold increase in bird populations can be considered as a reasonable reliable estimate.

Robins have been used as an illustration of the detrimental effects of insecticides on birds. The statement was made in a recent widely circulated book that

robins were on the verge of extinction. Figures from Audubon Field Notes does not support this statement.

TABLE 2.—Average number of robins counted annually.

Years	Robins
1949-52	41,214
1953-56	86,386
1957-60	367,733
1961-62	928,905

With this explosion of robin populations, robins found dead from natural causes should be in the proportion of a 20 to 1 increase over a period of 10 years. Overspraying with DDT in a shade-tree-spraying program may result in death to robins but critical studies indicate that city tree-spraying programs normally do not kill them. Relatively little DDT has been used in shade tree insect control as compared to the amounts used in far more numerous orchards where several applications were made annually. Robin populations have exhibited a meteoric rise to accompany the expanded use of DDT, despite the contention of some that city tree-spraying programs were decreasing these birds.

Other urban shade-tree bird populations also have increased during the stepped-up spraying for control of Dutch elm disease, gypsy moth, leafhopper vectors of phloem necrosis, the elm leaf beetle and many other insect pests as shown in Table 3.

TABLE 3.—Average number of mourning doves, flickers and starlings counted annually.

Years	Mourning Doves	Flicker <sup>1</sup>	Starling
1949-52	13,131	4,278	717,477
1953-56	32,752 <sup>2</sup>	5,980	1,561,710
1957-60	59,886	7,500	5,799,820
1961-62	66,860	9,216	8,119,410

<sup>1</sup> Yellow-shafted flicker.

<sup>2</sup> Data for 1953 were not summarized in Audubon Field Notes and are not included here.

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Of great significance is the recent report of research with rats which has shown DDT to have mutagenic effect. As with carcinogenesis, mutagenesis in rats indicates a high probability—but not a certainty—that DDT affects human genetics. Most mutations are harmful, do not show up until later generations, and unless lethal, are not eliminated from human populations once induced. (Footnote omitted). [Pet. Supp. Br. p. 23, 24]

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The Legator report cited for this contention is printed in the Supplemental Appendix at p. 270. As the report shows,

“Usually one will use a maximum tolerated dose ...” (Supp. App. 273)

The report also concedes:

“I might say two things here—a great deal of criticism with some of our testing procedures with compounds has been the fact that we have used so-called inappropriate routes, systemic routes, instead of oral ingestion, which is the normal way—we would get food additives and the pesticides via residues in our crops.” (Supp. App. 273)

Dr. Leon Golberg, toxicologist and pathologist of world renown and a members of the MRAK Commission, comments on the Legator procedures:

In his address, “Trace Chemical Contaminants in Food: Potential For Harm,” Dr. Golberg went on to blast methodology used in teratogenicity testing.

He called typical procedures of maximum tolerated dose, parenteral administration, and sometime application of dimethylsulfoxide as a solvent the “height of absurdity.”

Dr. Golberg pointed out that any one of a host of factors may be responsible for fetal death or resorption.

For example, he noted, in the mouse, air travel on post-conception day 12-13 is teratogenic, as is

fasting for 24 hours or less at a critical stage of pregnancy. In checking over the literature, Dr. Golberg came upon another way to produce teratogenic offspring: a diet of pure German raisins for one day. (M. App. 85)

We must also recall that DDT was identified in human fat more than 25 years ago and there is still no evidence that DDT is mutagenic or carcinogenic to humans. While it is, of course, impossible to prove a negative the compelling evidence is that DDT fits neither of these categories.

### SUMMARY

Montrose presents a brief that is fairly subject to the criticism of describing only one side of the story. This approach is necessitated by the deceptively simplistic, conclusion-oriented brief of the EDF. The requirement here is only to demonstrate the substantial evidence supporting the Secretary's findings. The Secretary's brief more than fulfills this obligation. It is thus unnecessary, perhaps, but relevant to demonstrate the lack of objectivity displayed by EDF. Montrose clearly recognizes that DDT is a material with characteristics that must be respected, characteristics which invite harmful results if handled or used carelessly. Humans have little to fear, much to gain from the judicious use of DDT. Some forms of wildlife will be damaged, at least temporarily, if DDT is not used for the intended purpose with a concern for environmental impact.

Some previously approved but now generally abandoned uses of DDT did result in damaging concentrations causing temporary harm. Spraying for Dutch elm disease is an illustration. The technique was to spray the trees heavily until runoff with the excess falling on the ground or on concrete or macadam roads thence into the storm sewer system and the nearest water depository. Temporary losses of birds were occasionally observed. DDT can be readily removed from this effluent, but communities desiring to save their elms showed little concern. Residues from home

garbage disposals flow into water courses either untreated or inadequately treated. Should not then the inquiry be not to ban the chemical but to seek ways of removing the residue before pouring sewage into nearby streams.

EDF is to be commended for focusing attention on a potential source of environmental pollution. EDF is not to be commended for assuming a position and pressing that position without regard for its total consequences. Perhaps it is not unfortunate that benefits to the quality of life entail risks. But a careless disregard for the ultimate consequences of a predetermined goal is to be deplored.

If EDF had desired a scientific consideration of its "voluminous" evidence, it could have requested the Secretary to empanel an advisory committee nominated by the National Academy of Sciences. 7 U.S.C. § 135b(c) (1969).

This course was not attractive since the Mrak Commission, the National Research Council of the National Academy of Sciences, the Special Review Group of DDT Uses, and the Ribicoff Committee in the past four years have all reviewed DDT in depth and reached parallel conclusions.

The Court is not faced with its usual task in review of an administrative agency record, i.e., reviewing a record of a hearing and detailed findings based on the record adduced at the hearing following cross-examination. The Court here is faced with a sterile record and the findings of the Secretary. These findings are not only consistent with but in fact are based upon the findings of the Mrak Commission and the National Research Council Committee.

Branding an investigation to be an illegal act is not worthy of serious consideration. The Secretary is seeking to define those essential uses which the Mrak Commission recognized must be continued. A proposal to cancel uses found not to be essential is anticipated and may be issued before this brief is filed.

We find no basis upon which this Court can reverse the findings of the Secretary premised as they are on the find-

ings of expert committees. If the Court should follow the procedure directed in *Environmental Defense Fund, Inc. v. Finch*, No. 23,812 (D.C. Cir., May 28, 1970) and direct the Secretary to publish a proposal to cancel all uses of DDT, the result will be to add another National Academy of Sciences Advisory Committee to the existing impressive list. This seems unnecessary and even wasteful. Affirmance of the Secretary's findings is consistent with the record and permissible scope of review and will permit the Secretary to continue with the process of identifying and eliminating nonessential uses.

It seems a near certainty that the Secretary's authority will shortly be transferred to the new Environmental Protection Agency pursuant to the President's Reorganization Plan No. 3 of 1970. This new agency will be appropriately staffed to continue the implementation of the Mrak Commission Report—phasing out nonessential uses of DDT within two years.

### CONCLUSION

The Secretary's findings are supported by substantial evidence. Evidence in the record to the contrary has been considered by the Mrak Commission and the more recent studies relied on are speculative and theoretical at best. The Secretary's program to carry out the Mrak Commission recommendations should not be disturbed. The Secretary's order should be affirmed.

Respectfully submitted,

ROBERT L. ACKERLY

Sellers, Conner & Cuneo

1625 K Street, N. W.

Washington, D. C. 20006

*Attorney for Intervenor*

Montrose Chemical Corporation  
of California

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## ADDENDUM

**Relevant Parts Of  
Statutes, Rules, And Regulations Cited  
7 U.S.C.**

*§ 135b. Registration of economic poisons—General requirements; single economic poisons; supplement statements; filing and contents of statements*

(a) Every economic poison which is distributed, sold, or offered for sale in any Territory or the District of Columbia, or which is shipped or delivered for shipment from any State, Territory, or the District of Columbia to any other State, Territory, or the District of Columbia, or which is received from any foreign country shall be registered with the Secretary: *Provided*, That products which have the same formula, are manufactured by the same person, the labeling of which contains the same claims, and the labels of which bear a designation identifying the product as the same economic poison may be registered as a single economic poison; and additional names and labels shall be added by supplement statements; the applicant for registration shall file with the Secretary a statement including—

*Notification of noncompliance with requirements; corrections; refusal, suspension or cancellation of registration by Secretary; effective date of cancellation; advisory committees and procedures; objections; public hearings; Secretary's orders; consultation with other agencies; confidential information; public hazard suspension; orders reviewable; defense of registration*

(c) If it does not appear to the Secretary that the article is such as to warrant the proposed claims for it or if the article and its labeling and other material required to be submitted do not comply with provisions of sections 135-135k of this title, he shall notify the applicant for registra-

tion of the manner in which the article, labeling, or other material required to be submitted fail to comply with said sections so as to afford the applicant for registration an opportunity to make the corrections necessary. If, upon receipt of such notice, the applicant for registration does not make the corrections, the Secretary shall refuse to register the article. The Secretary, in accordance with the procedures specified herein, may suspend or cancel the registration of an economic poison whenever it does not appear that the article or its labeling or other material required to be submitted complies with the provisions of sections 135-135k of this title. Whenever the Secretary refuses registration of an economic poison or determines that registration of an economic poison should be canceled, he shall notify the applicant for registration or the registrant of his action and the reasons therefor. Whenever an application for registration is refused, the applicant, within thirty days after service of notice of such refusal, may file a petition requesting that the matter be referred to an advisory committee or file objections and request a public hearing in accordance with this section. A cancellation of registration shall be effective thirty days after service of the foregoing notice unless within such time the registrant (1) makes the necessary corrections; (2) files a petition requesting that the matter be referred to an advisory committee; or (3) files objections and requests a public hearing. Each advisory committee shall be composed of experts, qualified in the subject matter and of adequately diversified professional background selected by the National Academy of Sciences and shall include one or more representatives from land-grant colleges. The size of the committee shall be determined by the Secretary. Members of an advisory committee shall receive as compensation for their services a reasonable per diem, which the Secretary shall by rules and regulations prescribe, for time actually spent in the work of the committee, and shall in addition be reimbursed for their necessary traveling and subsistence expenses while so serving away from their

places of residence, all of which costs may be assessed against the petitioner, unless the committee shall recommend in favor of the petitioner or unless the matter was referred to the advisory committee by the Secretary. The members shall not be subject to any other provisions of law regarding the appointment and compensation of employees of the United States. The Secretary shall furnish the committee with adequate clerical and other assistance, and shall by rules and regulations prescribe the procedures to be followed by the committee. The Secretary shall forthwith submit to such committee the application for registration of the article and all relevant data before him. The petitioner, as well as representatives of the United States Department of Agriculture, shall have the right to consult, with the advisory committee. As soon as practicable after any such submission, but not later than sixty days thereafter, unless extended by the Secretary for an additional sixty days, the committee shall, after independent study of the data submitted by the Secretary and all other pertinent information available to it, submit a report and recommendation to the Secretary as to the registration of the article, together with all underlying data and a statement of the reasons or basis for the recommendations. After due consideration of the views of the committee and all other data before him, the Secretary shall, within ninety days after receipt of the report and recommendations of the advisory committee, make his determination and issue an order, with findings of fact, with respect to registration of the article and notify the applicant for registration or registrant. The applicant for registration, or registrant, may, within sixty days from the date of the order and issue an order, with findings of fact, with respect to a public hearing thereon. In the event a hearing is requested, the Secretary shall, after due notice, hold such public hearing for the purpose of receiving evidence relevant and material to the issues raised by such objections. Any report, recommendations, underlying data, and reasons certified to the Secretary by an advisory committee shall be

made a part of the record of the hearing, if relevant and material, subject to the provisions of section 1006(c) of Title 5. The National Academy of Sciences shall designate a member of the advisory committee to appear and testify at any such hearing with respect to the report and recommendations of such committee upon request of the Secretary, the petitioner, or the officer conducting the hearing: *Provided*, That this shall not preclude any other member of the advisory committee from appearing and testifying at such hearing. As soon as practicable after completion of the hearing, but not later than ninety days, the Secretary shall evaluate the data and reports before him, act upon such objections and issue an order granting, denying, or canceling the registration or requiring modification of the claims or the labeling. Such order shall be based only on substantial evidence of record at such hearing, including any report, recommendations, underlying data, and reason certified to the Secretary by an advisory committee, and shall set forth detailed findings of fact upon which the order is based. In connection with consideration of any registration or application for registration under this section, the Secretary may consult with any other Federal agency or with an advisory committee appointed as here provided. Notwithstanding the provisions of section 135a(c) (4) of this title, information relative to formulas of products acquired by authority of this section may be revealed, when necessary under this section, to an advisory committee, or to any Federal agency consulted, or at a public hearing, or in findings of fact issued by the Secretary. All data submitted to an advisory committee in support of a petition under this section shall be considered confidential by such advisory committee: *Provided*, That this provision shall not be construed as prohibiting the use of such data by the committee in connection with its consultation with the petitioner or representatives of the United States Department of Agriculture, as provided for herein, and in connection with its report and recommendations to the Secretary. Notwithstanding any other provision of this section, the Secretary may, when he finds that such action is necessary to

prevent an imminent hazard to the public, by order, suspend the registration of an economic poison immediately. In such case, he shall give the registrant prompt notice of such action and afford the registrant the opportunity to have the matter submitted to an advisory committee and for an expedited hearing under this section. Final orders of the Secretary under this section shall be subject to judicial review, in accordance with the provisions of subsection (d) of this section. In no event shall registration of an article be construed as a defense for the commission of any offense prohibited under section 135a of this title.

*Judicial review; court of appeals; persons entitled to appeal, petition, record, jurisdiction, conclusiveness of findings, additional evidence, modification of findings and orders; Supreme Court; stay of administrative orders; calendar*

(d) In a case of actual controversy as to the validity of any order under this section, any person who will be adversely affected by such order may obtain judicial review by filing in the United States court of appeals for the circuit wherein such person resides or has his principal place of business, or in the United States Court of Appeals for the District of Columbia Circuit, within sixty days after the entry of such order, a petition praying that the order be set aside in whole or in part. A copy of the petition shall be forthwith transmitted by the clerk of the court to the Secretary, or any officer designated by him for that purpose, and thereupon the Secretary shall file in the court the record of the proceedings on which he based his order, as provided in section 2112 of Title 28. Upon the filing of such petition the court shall have exclusive jurisdiction to affirm or set aside the order complained of in whole or in part. The findings of the Secretary will respect to questions of fact shall be sustained if supported by substantial evidence when considered on the record as a whole, including any report and recommendation of an advisory committee. If application is made to the court for leave to adduce additional evidence, the court may order such additional evidence to be

taken before the Secretary, and to be adduced upon the hearing in such manner and upon such terms and conditions as to the court may seem proper, if such evidence is material and there were reasonable grounds for failure to adduce such evidence in the proceedings below. The Secretary may modify his findings as to the facts and order by reason of the additional evidence so taken, and shall file with the court such modified findings and order. The judgment of the court affirming or setting aside, in whole or in part, any order under this section shall be final, subject to review by the Supreme Court of the United States upon certiorari or certification as provided in section 1254 of Title 18.<sup>1</sup> The commencement of proceedings under this section shall not, unless specifically ordered by the court to the contrary, operate as a stay of an order. The court shall advance on the docket and expedite the disposition of all causes filed therein pursuant to this section.

#### Shipments between single-ownership plants

(e) Notwithstanding any other provision of sections 135-135k of this title, registration is not required in the case of an economic poison shipped from one plant to another plant operated by the same person and used solely at such plant as a constituent part to make an economic poison which is registered under said sections.

#### Time of cancellation and continuance of registration

(f) The Secretary is authorized to cancel the registration of any economic poison at the end of a period of five years following the registration of such economic poison or at the end of any five-year period thereafter, unless the registrant, prior to the expiration of each such five-year period, requests in accordance with regulations issued by the Secretary that such registration be continued in effect. As amended May 12, 1964 Pub.L. 88-305, § 3, 4, 17 Stat. 190, 192.

<sup>1</sup> So in original. Probably should read "Title 28."

PART 362—REGULATIONS FOR THE ENFORCEMENT OF THE  
FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

Note: For dates upon which certain sections of the act shall become applicable to nematocides, plant regulators, defoliants and desiccants, see 25 F.R. 1934, Mar. 5, 1960; 26 F.R. 4325, May 1, 1961.

General

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- 362.1 Words in singular form.
- 362.2 Terms defined.
- 362.3 Administration.
- 362.4 Labeling required.
- 362.5 Language to be used.
- 362.6 Labeling.
- 362.7 Ingredient statement.
- 362.8 Economic poisons highly toxic to man.
- 362.9 Warning or caution statement.

Registration

- 362.10 Registration.

Guarantees

- 362.11 Guarantee of economic poison.  
Coloration of Economic Poisons
- 362.12 Coloration and discoloration.  
Adulteration and Misbranding
- 362.13 Adulteration.
- 362.14 Misbranding.

Enforcement

- 362.15 Enforcement.
- 362.16 Notices of judgment.

Temporary Permits

- 362.17 Limited shipments for experimental purposes.
- 362.18-362.24 [Reserved]



## Declaration of Pests

Sec.

- 362.25 Forms of plant and animal life and viruses declared to be pests.

## Imports

- 362.30 Definitions.  
362.31 Registration.  
362.32 Declaration.  
362.33 Notice of shipments for importation.  
362.34 Drawing of samples of import shipments.  
362.35 Bond for release of imports pending examination.  
362.36 Procedure after examination.

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- 362.100 Interpretation as to applicability of act and regulations to operations of pest control operators.  
362.101 Interpretation of terms included in definition of economic poison.  
362.102 Interpretation with respect to names of products.  
362.103 Interpretation with respect to ingredients and ingredient statements.  
362.104 Interpretation with respect to statement of net contents.  
362.105 Interpretation of requirements with respect to directions for use.  
362.106 Interpretation with respect to registration requirements.  
362.107 Interpretation with respect to advertising.  
362.108 Interpretation with respect to labels for large containers.  
362.109 Interpretation with respect to the guaranty of an economic poison.  
362.110 Interpretation with respect to the analyzing and testing of economic poisons.

## Sec.

- 362.111 Interpretation with respect to shipments for experimental use; permit requirements.
- 362.113 Interpretation with respect to liquid and pressurized household insecticides acceptable for generalized application (primarily non-deposit forming).
- 362.115 Interpretation with respect to labeling of weed killers containing 2,4-D, 2, 4, 5-T, and MCPA.
- 362.116 Interpretation with respect to warning, caution, and antidote statements required to appear on labels of economic poisons.
- 362.117 Interpretation with respect to labeling of household insecticides containing chlordane.
- 362.119 Interpretation concerning labeling claims for germicides, disinfectants, and sanitizers recommended for use in hard water areas.
- 362.120 Interpretation with respect to registration of thallium products for the control of insect and rodent pests in the household.
- 362.121 Interpretation with respect to liquid, powdered and pressurized household insecticides acceptable for depositing insecticidal and chemical residues.
- 362.122 Interpretation with respect to claims for safety and nontoxicity on labeling of economic poisons.
- 362.123 Interpretation with respect to labeling of sodium arsenate or arsenic trioxide products.
- 362.124 Interpretation with respect to labeling of phosphorous paste products.
- 362.125 Interpretation with respect to the term "germ proof" and related terms used in labeling of economic poisons.

(j) *Vertebrate animals.* "Vertebrate animals" means all species of the subphylum vertebrata including domestic vertebrates and vertebrate species of fish and wildlife.

(k) *Invertebrate animals.* "Invertebrate animals" means all forms of animal life other than vertebrate animals, including both domestic and wild species.

§ 362.116 *Interpretation with respect to warning, caution, and antidote statements required to appear on labels of economic poisons.*

*Dichloro diphenyl dichloroethane.* Treat on same basis as DDT.

*Dichloro diphenyl trichloroethane (DDT)*—(i) *Technical, emulsions, and wettable powders above 25%.*

Caution: Harmful if swallowed. Avoid skin contact with solutions. In case of skin contact, wash with soap and water. Avoid breathing dust and spray mist. Avoid contamination of feed and foodstuffs.

(ii) *Emulsifiable or petroleum oil solutions for agricultural and industrial use 25% and below.*

Caution: Avoid contact with skin. In case of skin contact, wash with soap and water. Avoid breathing spray mist. Avoid contamination of feed and foodstuffs.

(iii) *Emulsifiable or petroleum oil solutions for household use.*

Caution: Harmful if swallowed. Avoid contact with skin. Avoid prolonged breathing of spray mist. Wash with soap and water after using. Avoid contamination of feed and foodstuffs. Remove birds, pets, and fish bowls from rooms being sprayed. Keep out of reach of children.

Note: See also Interpretation 15 (362.113).

(iv) *Self-propelled sprays.*

Caution: Do not spray on skin or animals. Wash with soap and water after using. Avoid inhalation of mist. Avoid con-

tamination of feed and foodstuffs. Remove birds, pets, and fish bowls from rooms being sprayed. Keep out of reach of children.

Note: See also Interpretation 15 (362.113).

(v) *Dust and wettable powder formulations 25% and below.*

Caution: Avoid breathing dust. Avoid contamination of feed and foodstuffs.

*Parathion (O,O-Diethyl O,p-nitrophenyl thiophosphate)*  
—(i) *Above 2% (except aerosols; see below).*

$$\begin{array}{cc} \text{O} & \text{O} \\ & \text{Poison} \\ \text{x} & \text{x} \end{array}$$

Antidotes: If swallowed. Give a tablespoonful or salt in a glass of warm water and repeat until vomit fluid is clear. Have victim lie down and keep quiet. Call a Physician Immediately!

If on skin. In case of contact remove contaminated clothing and immediately wash skin with soap and water.

Warning Poisonous if Swallowed, Inhaled, or Absorbed Through Skin! Rapidly Absorbed Through Skin! Do not get in eyes, on skin, or on clothing. Wear natural rubber gloves, protective clothing and goggles. In case of contact, wash immediately with soap and water. Wear a mask or respirator of a type passed by the U.S. Department of Agriculture for parathion protection. Keep all unprotected persons out of operating areas or vicinity where there may be danger of drift. Vacated areas should not be reentered until drifting insecticide and volatile residues have dissipated. Do not contaminate feed and foodstuffs. Wash hands, arms, and face thoroughly with soap and water before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse.

(ii) *Dusts, 2% and below.*

Warning: May Be Fatal If Swallowed, Inhaled, or Absorbed Through Skin! Rapidly Absorbed Through Skin! Do not get in eyes, on skin, or on clothing. Wear natural rubber gloves, protective clothing and goggles. In case of contact wash immediately with soap and water. Wear a mask or respirator of a type passed by the U.S. Department of Agriculture for parathion protection. Keep all unprotected persons out of operating areas or vicinity where there may be danger of drift. Vacated areas should not be reentered until drifting insecticide and volatile residues have dissipated. Do not contaminate feed and foodstuffs. Wash hands, arms, and face thoroughly with soap and water before eating or smoking. Wash all contaminated clothing with soap and hot water before reuse.

(iii) *Aerosols—greenhouse use.*

o            o  
Poison  
x            x

Antidotes: Internal. Give a tablespoonful of salt in a glass of warm water and repeat until vomit fluid is clear. Have victim lie down and keep quiet. Call a Physician Immediately!

If on skin. Wash thoroughly with soap and water.

Warning: Poisonous If Inhaled or Absorbed Through Skin! Do not get on skin. Use only while wearing a full-face mask of a type passed by the U.S. Department of Agriculture for parathion protection. Replace canister as directed. Wear protective clothing and natural rubber gloves. Wash hands, arms and face with soap and water after using the bomb. Wash contaminated clothing with soap and hot water before reuse. Do not contaminate feed and foodstuffs.



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IN THE  
**UNITED STATES COURT OF APPEALS**  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 23,813

ENVIRONMENTAL DEFENSE FUND, INCORPORATED, SIERRA CLUB, WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL, and NATIONAL AUDUBON SOCIETY, *Petitioners*,  
IZAACK WALTON LEAGUE OF AMERICA, and  
THE STATE OF NEW YORK, *Intervenors*,

v.

CLIFFORD M. HARDIN, SECRETARY OF AGRICULTURE, and  
UNITED STATES DEPARTMENT OF AGRICULTURE,  
*Respondents*,

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA,  
*Intervenor*.

*Petition for Review of Order of The United States  
Department of Agriculture*

**REPLY BRIEF FOR PETITIONERS**

Edward Lee Rogers  
Environmental Defense  
Fund, Incorporated  
P.O. Drawer 740  
Stony Brook, New York

Edward Berlin  
Berlin, Roisman and  
Kessler  
1910 N Street, N.W.  
Washington, D.C.

*Attorneys for  
Environmental Defense  
Fund, Incorporated*

James W. Moorman  
Charles R. Halpern  
2008 Hillyer Place, N.W.  
Washington, D.C. 20009

*Attorneys for Environmental  
Defense Fund, Incorporated,  
Sierra Club,  
West Michigan Environmental  
Action Council, National  
Audubon Society, and  
Izaak Walton League of  
America*

September 8, 1970





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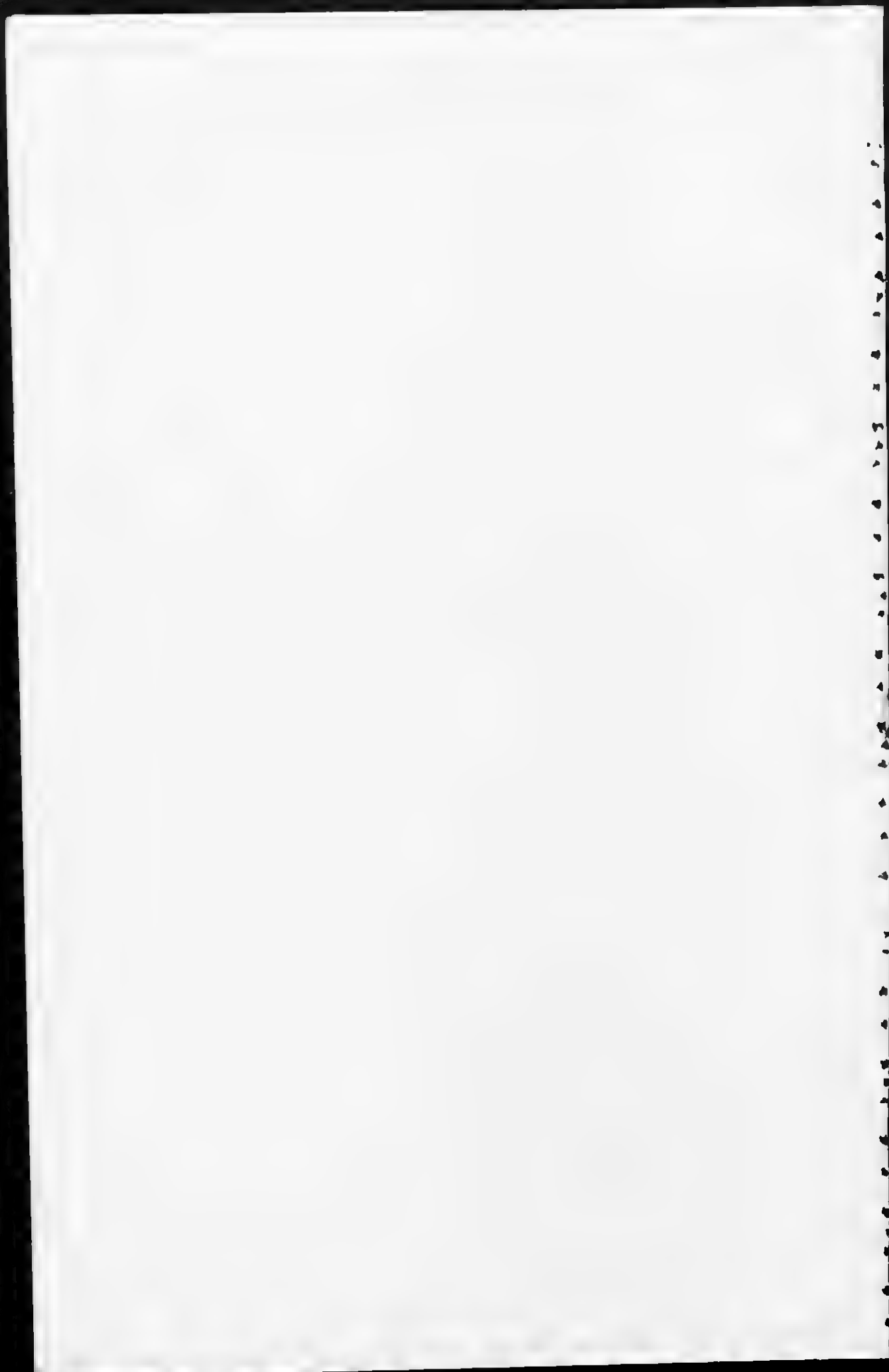
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IN THE  
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*Respondents*,

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*Intervenor*.

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*Petition for Review of Order of The United States  
Department of Agriculture*

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REPLY BRIEF FOR PETITIONERS

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INTRODUCTION

In the Statement of the Reasons Underlying the Decision on Behalf of the Secretary with Respect to the Registrations of Products Containing DDT, filed on June 29, 1970 ("Statement"), Respondents confirmed that use of DDT should be discontinued; that DDT is carcinogenic in test animals; that DDT is causing the decline of some species; and that DDT kills non-target fish and birds. In their Brief, Counsel for Respondents attempts to minimize the damage caused by DDT and tries to discredit some of the very evidence which the Respondents cited in their own statement. Respondents also attempt to reargue the jurisdictional question which this Court has already decided against them.

On January 12, 1970, the Secretary of Agriculture moved to dismiss this cause for lack of jurisdiction "asserting that petitioners lack standing to complain of his failure to act, that there is no final order ripe for review, that any final order would nevertheless be unreviewable because it involves questions committed by law to agency discretion, and that any available relief can be afforded only by the district court on a writ of mandamus, and not by the court of appeals".<sup>1</sup> After these issues were thoroughly briefed by the parties, this Court ruled on May 28, 1970, in favor of the Petitioners.<sup>2</sup> The jurisdictional issues raised by the Secretary, Montrose and *amicus* are the same as those already decided against them on May 28. Petitioners, therefore, rest upon the opinion of this Court of May 28, 1970, and upon their Brief of February 13, 1970, and their Reply Brief and Supplemental Memorandum of March 11, 1970.<sup>3</sup>

In this Reply Brief, Petitioners will argue: (a) as a matter of law, DDT is an imminent hazard to the public and must be suspended; (b) in the alternative, Section 4c notices must be issued to begin the statutorily prescribed administrative process; and (c) the Respondents' Counsel erroneously went beyond the Respondents' own position, developing new theories and relying on new authorities in attempting to justify the Respondents' failure to suspend DDT or issue Section 4c notices.

On August 18, 1970, Respondents issued Section 4c notices against 65 uses of DDT.<sup>4</sup> This action impliedly recog-

<sup>1</sup>*Environmental Defense Fund, et al. v. Hardin, et al.* No. 23,813 (D.C. Cir. May 28, 1970) (Slip. Op. 4).

<sup>2</sup>*Ibid.*

<sup>3</sup>In *Nor-Am Agricultural Products Inc. v. Hardin*, No. 18,478 (7th Cir., dec. July 15, 1970, rehearing *en banc* granted), the Court of Appeals for the Seventh Circuit recognized the propriety of judicial review of the Secretary's decision concerning suspension, citing this Court's decision of May 28, 1970 in this case.

See also dissenting opinion, p. 32, fn.

<sup>4</sup>P R Notice 70-19. See Addendum to this Reply Brief.



nized that DDT has done injury to the environment and poses a substantial threat to human health. It did not, however, even initiate administrative proceedings to deal with the principal use of DDT—cotton—which accounts for approximately 75 percent of DDT used on farms (Supp. App. 118) nor does it diminish the general availability of products containing DDT.

# I

## ARGUMENT

### RESPONDENTS HAVE ERRED IN FAILING TO FIND THAT DDT IS AN IMMINENT HAZARD TO THE PUBLIC, AS THAT TERM IS USED IN FIFRA

Respondents have argued that the Court is not competent to pass on whether DDT constitutes an imminent hazard, because of the "scientific and technical" character of this question (Res. Brief 21-22). Petitioners submit that the imminent hazard standard is not a scientific standard but a legal standard which embodies a judgment of social policy. As such, the Court is an appropriate forum to review its application in a particular case. The Court does not lack the expertise to review the Respondents' assessment of the "quantum of the benefits and detriments of DDT."

The function of this Court on review is to construe the legal meaning of the imminent hazard standard and to review the Secretary's decision about DDT to ensure that the decision is supported by the record as a whole, not to test its scientific validity.

As for balancing benefits and costs, the Court can properly determine the factors to be lawfully balanced under the imminent hazard standard and can also review the factual determinations of the Secretary. A hazard is "imminent" if (1) the harm or (2) operative actions which will cause the harm, occur prior to the time cancellation proceedings will be brought to a conclusion. Thus the distribution, prior to cancellation, of a persistent pesticide which can thereafter

be expected to cause cancer or injury to wildlife must be considered an imminent hazard to the public.

On August 31, 1970, the Secretary filed a Statement<sup>5</sup> with this Court in another case (No. 24,434) in which he explained the great weight to be attached to evidence of carcinogenicity in assessing whether an imminent hazard exists. In discussing the herbicide 2,4,5-T, the Secretary expressed his agreement with the Surgeon General's statement that:

"if an individual or an animal were exposed to a carcinogen, and developed a cancer 20 years later, this is nonetheless as far as I am concerned, an imminent hazard and we should remove it."<sup>6</sup>

This interpretation of the Secretary's duty to protect the public from imminent hazards, as the position of the administrator charged with the duty of administering FIFRA, is entitled to great weight.<sup>7</sup> It is, in addition, the exact view of the Petitioners as to Respondents' obligation with regard to DDT.<sup>8</sup>

The problem with regard to DDT is clear. The harm it causes becomes irreversible and inevitable upon its introduction into the environment. Since such introduction can

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<sup>5</sup> Statement of the Reasons Underlying the Decision of the Secretary with Respect to the Registrations of Products Containing 2,4,5-T ("2,4,5-T Statement")

<sup>6</sup> *Ibid.* at 4.

<sup>7</sup> *Udall v. Tallman*, 380 U.S. 1 (1965).

<sup>8</sup> As the Secretary's 2,4,5-T Statement relates, many of the registrations of 2,4,5-T were in fact suspended. The evidence before the Secretary indicated that 2,4,5-T is teratogenic, that is to say, that it causes birth defects in test animals. Significantly, the major evidence of 2,4,5-T's teratogenic effect on which the Secretary relied is the same National Cancer Institute study which produced the most important evidence that DDT is a carcinogen. See 2,4,5-T Statement pp. 11-12. See reference to Innes, *et al.*, Pet. Supp. Brief p. 20, 29; Supp. App. 224 Bibli. 238.

only be prevented by suspension, DDT should be deemed an imminent hazard.

Aside from the aspect of timing, there is a separate consideration as to the likelihood, magnitude and irreparability of the anticipated harm. Suspension should be used in cases where harm is serious and irreparable. It seems clear that use of DDT involves injury to man and the environment that is both serious and irreparable. Furthermore, DDT has already caused considerable harm to various species of wildlife. There is no need to speculate about it. If the suspension clause does not apply to DDT, the clause will be rendered practically meaningless.<sup>9</sup>

In assessing the existence of an imminent hazard to the public, the Secretary is clearly intended to consider harm to fish and wildlife and other non-target organisms.<sup>10</sup> The 1964 amendments, which added the suspension provision, were passed as a result of the concern generated by Rachel Carson's *Silent Spring*.<sup>11</sup> The Senate Agriculture Committee indicated the suspension provisions were intended to encompass the protection of fish and wildlife.<sup>12</sup> Secretary of the Interior Stewart Udall had suggested an amendment to the imminent hazard clause to protect specifically fish and wildlife. The Senate Committee rejected the amendment on the ground that it was unnecessary since it was intended that the clause would protect fish and wildlife as written.

As is the case with cancellation, the FIFRA leaves the Secretary some scope for balancing competing interests in

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<sup>9</sup>See Petitioners' Memorandum of Fact and Law in Support of Motion for Summary Reversal, *Wellford, et al. v. Hardin* No. 24,434 (filed July 10, 1970). The discussion of "imminent hazard" in that Memorandum is relevant to the issue in this case.

<sup>10</sup>See Brief for Petitioners, p. 20; Supplemental Brief for Petitioners p. 18.

<sup>11</sup>See Statement of Senator Ribicoff, 110 Cong. Rec. 7189; Statement of Congresswoman Sullivan, 110 Cong. Rec. 2949.

<sup>12</sup>P.3, S. Rept. No. 573, 88th Cong., 1st Sess. (1963).

reaching a decision concerning suspension. See, *infra*, pp. 9-10. However, the Secretary cannot permit general economic theories to outweigh the considerations of human health and protection of non-target animals to which the FIFRA directs priority attention.

## II

### RESPONDENTS ERRED IN FAILING TO ISSUE NOTICES OF CANCELLATION FOR ALL USES OF DDT

Petitioners have shown in their Supplemental Brief that Respondents' own findings and conclusions compel the issuance of Section 4c notices for all DDT uses to initiate cancellation proceedings. Since that Brief was filed, the Secretary has again confirmed these findings and conclusions.

On August 18, 1970, the Secretary issued Section 4c notices for 65 uses of DDT.<sup>13</sup> While the Secretary did not choose to cover the largest use of DDT—cotton—he recognized again that:

“[DDT's] continued widespread use and relatively slow degradation has resulted in the presence in the environment of low but undesirable levels of DDT. Trace residues can often be detected in areas far removed from sites of application. Presently available scientific evidence indicates that there are adverse effects upon certain species of fish and wildlife as a result of the use of DDT.”

There is no way to tell whether DDT in the environment was originally sprays on cabbage (a use covered by the August 18, 1970 Notice) or cotton (a use not covered by the August 18, 1970 Notice). Nor, as the purpose of cancellation is to prevent injury, to man and non-target animals, is there any rational basis to issue a 4c notice for cabbage and not for cotton.

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<sup>13</sup>P R Notice 70-19. See Addendum to this Reply Brief.

There is no justification for further delay in the issuance of Section 4c notices for cotton and other remaining DDT uses. Impressive evidence of DDT's harmful effects on man and the environment has been marshalled. Indeed, the Respondents have acted on this evidence to limit the uses to which DDT can be put. Since the harms caused by DDT are wholly independent of the uses to which the pesticide is initially put, Section 4c notices should be issued at once.

Petitioners have reviewed the FIFRA cancellation procedures in detail at pages 36 through 42 of their Supplemental Brief. Petitioners further note the Congressional judgment that 4c notices should be issued "*whenever a reasonable question as to the safety of a registered product becomes apparent.*" "Deficiencies in Administration of the Federal Insecticide, Fungicide, and Rodenticide Act," H. Rept. 91-637, 91st Cong., 1st Sess., Nov. 13, 1969, p.19 (emphasis in original). Manufacturers have an ample opportunity to rebut this preliminary finding in a public proceeding pursuant to Section 4c. In that setting their expert witnesses can be cross-examined and the strength of their case assessed.

Clearly, then, the determination to issue cancellation notices is preliminary. It amounts to a determination that a serious enough question has been raised as to the safety of a product to justify, indeed, to require, putting the manufacturers to their proof. The burden is on them to establish the safety of DDT.

When a reasonable question of a pesticide's safety is raised, no further delay in the issuance of 4c notices is permissible. The Section 4c procedure affords ample opportunity for exhaustive exploration of all aspects of the matter. In this case DDT has been studied in great depth by several expert bodies. Countries around the world have acted to bar its use on the basis of present scientific evidence. The case for DDT can be made in the lengthy hearings under Section 4c, to which the registrant will, in any event, be entitled. Under these circumstances, further delay in the issuance of 4c notices is wholly inconsistent with the statu-

tory scheme. The 4c procedures themselves can be extremely time consuming. For example, on November 20, 1969, the Respondents issued notices of cancellation for 4 DDT uses. In the intervening nine months the administrative hearing procedures were not even begun.

This is not to say that Respondents cannot consider the benefits flowing from a particular DDT use in making its ultimate decision on cancellation. Petitioners submit, however, that the range of discretion for such weighing is limited. If, for example, a pesticide is shown to have carcinogenic effects when used in accordance with commonly recognized practice, such pesticide is misbranded and its registration must be cancelled unless some overpowering considerations of public health dictate a different result—if, for example, its use is essential to suppress some other disease and no alternative for such disease suppression was available. An assessment of whether such pesticide is "injurious to living man" would seem to require the Secretary to consider the totality of the pesticide's consequences for human health and not just its impact on one disease.

The Secretary cannot, however, vitiate the statutory mandate by attempting to assess and weigh all the "social benefits" of a particular pesticide (Cf. Res. Brief 62). The Respondents wander far from the statutory mandate, in this case, for example, when they weigh against the substantial harms caused by DDT the fact that a ban of DDT would allegedly have "a substantial impact on the economy of the entire Nation." (Res. Brief 64). The statutory scheme does not give the Secretary a hunting license to search out social and economic policies which can be permitted to overbalance the considerations of safety of man and animals to which the FIFRA scheme directs the Secretary's attention. Since DDT has an injurious impact on man and animals, the Secretary has a duty to issue notices of cancellation without regard to his speculations of the impact of a DDT ban on the "economy of the entire Nation."

## III

**COUNSEL FOR THE SECRETARY HAS IMPROPERLY  
DEPARTED FROM THE FINDINGS OF THE SECRETARY**

It is well settled that "an administrative order cannot be upheld unless the grounds upon which the agency acted in exercising its power were those upon which its action can be sustained." *Securities & Exchange Commission v. Chenery Corp.*, 318 U.S. 80 (1943)<sup>14</sup> The problem in *Chenery* was "that the considerations urged here [*i.e.* in Court] in support of the Commission's order were not those upon which its action was based." In the second *Chenery* opinion (332 U.S. 194) this rule was further clarified.

"[A] simple but fundamental rule of administrative law . . . is . . . that a reviewing court, in dealing with a determination or judgment which an administrative agency alone is authorized to make, must judge the propriety of such action solely by the grounds invoked by the agency. If those grounds are inadequate or improper, the court is powerless to affirm the administrative action . . . ." *Securities & Exchange Commission v. Chenery Corp.*, 332 U.S. 194, 196 (1946).

The Supreme Court further stated in *Burlington Truck Lines, Inc. v. United States*, 371 U.S. 156, 168-69 that: "The courts may not accept *post hoc* rationalizations for agency action; *Chenery* requires that an agency's discretionary order be upheld, if at all, on the same basis articulated in the order by the agency itself."<sup>15</sup>

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<sup>14</sup> In *Chenery* an SEC ruling was remanded even though there were grounds upon which the ruling could have been valid.

<sup>15</sup> See also *Public Service Comm. v. Federal Power Comm.*, No. 23, 446 (D.C. Cir. June 29, 1970); *National Air Carrier Ass'n v. Civil Aeronautics Board, et al.*, No. 23,012 (D.C. Cir. May 28, 1970); *Trailways of New England, Inc. v. Civil Aeronautics Board, et al.*, 412 F.2d 926, 931 (1st Cir. 1969).



The Secretary's Counsel acknowledges this rule (Res. Brief 16-17), but he has failed to follow the rule. Throughout his Brief Counsel has provided new justifications for the Secretary's denial of Petitioners' requests and has altered the Secretary's findings. Indeed, the entire Brief for the Respondents at pages 31-69 is nothing more nor less than counsel's rewrite of the Secretary's Statement of June 29, 1970. The following are examples of this practice:

1. With respect to evidence that DDT causes cancer in test animals, the Secretary said: "There are reports of carcinogenicity resulting from the administration of large doses of DDT in test animals (citing reports). However, the relevance of such *findings* to cancer in *man* has not been established" (emphasis supplied) (Statement 3, Supp. App. 48). Nowhere in the June 29 Statement does the Secretary question the validity of the finding that DDT causes cancer in test animals. In contrast to the Secretary's discussion of carcinogenicity, Counsel tries at some length to cast doubt on the conclusion that DDT causes cancer in test animals (Res. Brief 40-46). For example, Counsel cites Agathe's Report that DDT in the diet of hamsters "failed to show any significant increase in tumor incidence." (Res. Brief 43). The Secretary, in contrast, cited the Agathe study for the proposition that "There are reports of carcinogenicity resulting from the administration of large doses of DDT in test animals." (Statement 3, Supp. App. 48).

2. Counsel asserts that "epidemiological experience refutes the thesis that DDT is a carcinogen . . . ." (Res. Brief 45). The Secretary's Statement contained no such assertion; indeed, it did not refer to epidemiological evidence.

3. Counsel has revised the Secretary's list of diseases for which DDT use is supposedly essential. Counsel has deleted from the Secretary's list onchocerciasis, typhus, tick fever and cholera, and added hemorrhagic fever, phlebotomus fever, cutaneous-leishmaniasis and Carrion's disease (Res. Brief 50, See Statement 2-3, Supp. App. 47-48).

4. With regard to wildlife, the Secretary found "DDT is present in most forms of animal life [references omitted]. There is information which suggests that it is interfering with the reproduction of certain species of raptorial birds and may be a contributor, among other factors, to the decline of some of these species [references omitted] . . . ." (Statement 5, Supp. App. 50). The Secretary, nowhere disowns this information and in fact concludes, in part, that "The presently available scientific evidence indicates that there are some adverse effects upon certain species of fish and wildlife as a result of the use of DDT, . . . ." (Statement 13, Supp. App. 58). Counsel, however, asserts that ". . . the scientific community presently believes that many of the reports [of damage to bird species] are inaccurate because they characterize polychlorinated biphenyl (PCB) as DDT" (Res. Brief 52). Counsel goes on in his discussion of wildlife to imply again and again that DDT does not cause harm at all. Counsel's statements are not, however, in the Secretary's Statement, and should, therefore, be disregarded.

5. An egregious instance of Counsel's *post hoc* findings for the Secretary concerns the inhibition by DDT of photosynthesis in phytoplankton. The evidence was cited by Petitioners in their original petition to the Secretary on October 31, 1969. The Secretary did not refer to it in his June 29, 1970 Statement. Counsel now takes the position that DDT does not significantly inhibit phytoplankton photosynthesis (Res. Brief 60-61). Far worse is the fact that the authority of Counsel (Index III-106) is not listed in the Secretary's Index of Materials Submitted Pursuant to the Court's Order (see Supp. App. 60-78) or included in the record.

Counsel's revised findings (Res. Brief 31-69), which vary from the Secretary's Statement must be disregarded.

**THE EVIDENCE COMPELS FINDINGS AND CONCLUSIONS THAT (A) DDT IS AN IMMINENT HAZARD TO THE PUBLIC AND SHOULD BE SUSPENDED AND (B) THAT DDT DOES NOT COMPLY WITH FIFRA CANCELLATION STANDARDS DESIGNED TO PROTECT THE PUBLIC AND PREVENT INJURY TO MAN AND ANIMALS**

Petitioners have in their Supplemental Brief reviewed the evidence in the Record, shown that the evidence compels a finding that DDT is an imminent hazard to the public (Pet. Supp. Brief 19-34), and shown that it compels the issuance of Section 4c notices (Pet. Supp. 45). The evidence is clear that DDT is a carcinogen (Pet. Supp. Brief 20-23), causes other health problems (Pet. Supp. Brief 23-24), and is causing harm to fish and wildlife (Pet. Supp. Brief 24-30). Petitioners have also shown that the Secretary has made findings in accordance with this evidence (Pet. Supp. Brief 43-44).

We have shown above (pp. 11-14 *supra*) that the Secretary's counsel has improperly attempted to restructure the Secretary's earlier findings and to supply new rationalizations in support of his decision. What is more, in rewriting the Secretary's Statement, Counsel has drawn a number of erroneous inferences and misleading conclusions.

Before discussing the evidence relied on by Counsel a word is in order concerning the standard of review. The Secretary, Montrose and *amicus* argue that the Court should not determine whether the Secretary's decision is supported by the record as a whole, but should only determine if it has "a rational basis". Review of the record as a whole, however, is clearly the proper approach. This Court stated on May 28, 1970, in remanding to the Secretary for a statement of reasons and a reviewable record, that the Court's role was "to ensure that [the Secretary] exercises his discretion within a reasonable time, and to ensure that his decision is supported by the record." (Slip Op. 11). The Court further stated that "the basis for that decision should

appear clearly on the record, not in conclusory terms but in sufficient detail to permit prompt and effective review." *Ibid.*

Section 4d of FIFRA, 7 U.S.C. § 135(d), provides, in part, that:

"The findings of the Secretary with respect to questions of fact shall be sustained *if supported by substantial evidence when considered on the record, as a whole*, including any report and recommendation of an advisory committee." (Emphasis supplied.)

In this context it is important to scrutinize closely the evidence which counsel has selected to buttress the decisions reached by the Secretary.

#### A. The Use of DDT on Cotton and Other Crops.

In arguing that DDT is of "inestimable value", Counsel for Respondents returns, necessarily, to cotton production. The fact is that approximately 75 percent of all DDT used on farms is used on cotton. The general trend in American agriculture is away from the use of DDT—DDT in domestic use dropped nearly 50 percent in the period from 1958-59 to 1966-67 (Supp. App. 525). Even in cotton, DDT use has been declining—down 19 percent in the period from 1964 to 1966 (Supp. App. 118). As of 1966, DDT was used on only 38 percent of cotton acres.<sup>16</sup>

Counsel for the Secretary asserts that suspension of DDT use for cotton would be "disastrous to the cotton industry," would have "a wide-ranging impact on the textile and cottonseed feed and oil industries," "would create serious economic problems for thousands of workers and would have a substantial impact on the economy of the entire Nation." (Res. Brief 64). The Secretary himself made no such

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<sup>16</sup>Counsel for Respondents states that DDT is of great value to farmers, especially on crops like soybeans. But Respondents' own figures undermine this assertion. In 1964, for example, DDT was used on 2 percent of the acres on which soybeans were grown. In 1966, it was used on only 1 percent (Supp. App. 121).

extravagant assertions, and they have no support in the record.

DDT is not the pesticide most commonly used on cotton. As of 1966, 42 percent of all pesticides used on cotton were toxaphene (27.3 million pounds). DDT accounted for only 29 percent (19.2 million pounds). (Supp. App. 122). According to Respondents' own analysis, toxaphene has partially replaced DDT for use on cotton (Supp. App. 119).

Counsel cites an estimate made by Respondent that "an 83 percent reduction of the use of DDT on cotton in 1966 would have required more frequent applications of less effective, significantly hazardous, organophosphorous alternatives, at an increased cost of \$15.4 million" (Res. Brief 64). In fact the authority cited ties the \$15.4 million figure to the replacement of *all organochlorine* pesticides, not just DDT. Toxaphene is, of course, such an organochlorine (Supp. App. 521, 522). Thus Counsel's claims of an impending \$15.4 million increase in cotton production costs are completely unfounded. Instead, the record indicates that DDT is not critical for cotton production and no replacement cost for DDT alone is given. Neither the Secretary nor his counsel have shown any evidence that the cotton industry would lose one penny if DDT use alone were suspended immediately.

**B. DDT is a Carcinogen and Causes Other Health Hazards.**

The evidence that DDT causes cancer in test animals is conclusive. This evidence was accepted by the Mrak Commission and by the Secretary in his June 29, 1970 Statement. (Pet. Supp. Brief 20-23). The Secretary expressed reservations only about the inference that DDT causes cancer in man.

Counsel's attempt to go beyond the Secretary and imply that DDT is not a carcinogen in test animals, however, does not succeed:

1. Counsel quotes extensively from an unidentified report of Wayland Hayes (Res. Brief 40-43) in order to discredit the reports of DDT's carcinogenic properties, including the Innes Report. Hayes concludes that "DDT is not a carcinogen." However, the Secretary's Statement of June 29, 1970 does not take the Hayes position; nor does the Secretary even cite Hayes' report in his discussion of cancer.

2. Counsel's citations of other studies—by Agathe and Laws—to undercut the evidence of carcinogenicity in test animals are erroneous (Res. Brief 43-44). The Secretary, in fact, cited the Agathe study for the proposition that DDT causes cancer in test animals; and the Laws study is fully consistent with the findings of the Innes study, since carcinogenic substances often are carcinolytic (*i.e.*, they break down tumors).

3. Counsel quotes an analysis by Jukes which suggests the Innes Study would mean only one case of cancer in 200 million (Res. Brief 44). Jukes bases his Statement on an assessment that the DDT dosage level was 3,000 times the average U.S. human exposure. The Innes Study, however, states that the dosage of DDT fed to mice was only 140 parts per million (Supp. App. 227). The level of DDT in human tissue is often found at 14 parts per million (and sometimes much higher) (see Mrak 321-342). (Again, the Secretary did not cite Jukes for the proposition in question or otherwise rely on his study.)

4. Counsel describes Laws' examinations of 35 men who worked at a DDT formulating plant, stating that "of great significance is the fact that none of the workers developed symptoms of cancer," citing Supp. App. 385-387 (Res. Brief 38). In fact, nowhere on the cited pages is there any discussion of the absence of cancer or its significance. It is obvious that a review of 35 workers is inadequate, since one cancer event in 10,000 persons every 20 years would be very serious (*i.e.*, 20,000 cases in a population of 200,000,000 people). Again, the Secretary did not cite Laws for Counsel's proposition.



Turning to other health problems, Counsel's discussion at pages 33-39 essentially concern DDT's lack of acute toxicity. Petitioners have never claimed, however, that DDT's problems involved acute toxicity.<sup>17</sup>

### C. DDT Is Injurious To Fish And Wildlife.

Counsel for the Secretary suggests that for a variety of reasons "DDT is not the major factor adversely affecting wildlife" (Res. Brief 51). More blame rests, he says, on Polychlorinated Biphenyl (PCB) (Res. Brief 52-54), other pesticides, such as dieldrin (Res. Brief 55), persecution by man (Res. Brief 57) and the general consequences of increased human population (Res. Brief 51). The short answer to this is that Petitioners do not claim DDT to be "*the* major factor" in our present environmental crisis. Nor do Petitioners claim that the suspension of DDT will be a panacea for the environmental crisis. DDT is indeed but one of several very serious environmental pollutants man has imposed on the environment. That other pollutants require action does not detract from the need for action now on DDT. We will not be the first country to act against DDT.

With regard to PCB, the alternative hazard to wildlife most heavily relied upon by the Secretary's Counsel, a fur-

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<sup>17</sup>We note that Respondents and their Counsel do not deal with the Soviet reports of health abnormalities of workers occupationally exposed to DDT. (Supp. App. 259, 265; Bibli. 286-290, 296). In this discussion, Counsel also dismisses evidence that DDT is mutagenic (Supp. App. 270; Bibli. 300) as of no consequence to man with two glaring *non sequiturs* (Res. Brief, p. 36, 18; p. 37, 19). The Mrak Commission's Panel on Mutagenesis, however, recommended that *all* pesticides be tested for mutagenesis by four systems, one of which is that used by Dr. Legator to test the mutagenicity of DDT. The Panel said, "Pesticides should be tested at concentrations substantially higher than those to which the human population is likely to be exposed" and "use of mutagenic pesticides *must be regorously restricted or banned unless thorough and impartial study demonstrates convincingly that the benefit outweighs the risk.*" (Emphasis added.) (Mrak pp. 267-268, Supp. App. 306-307).



ther word is in order. Counsel implies that the evidence of harm caused by PCB is evidence that DDT is not harmful to fish and wildlife. While PCB has been confused in gas chromatographic analysis for DDT, and in fact does cause problems similar to those caused by DDT, there is no question that DDT alone causes the reproductive failures of many species. Experimental evidence in which DDT and its metabolites were fed exclusively to birds has eliminated any doubt as to DDT's effects alone (Bibli. 232, 256, 275; Supp. App. 220, 242, 253). Furthermore, there are many field studies in which there is clearly no PCB confusion (Bibli. 28, 279; Supp. confusion (Bibli. 88, Supp. App.

In addition, the metabolite of DDT which has the worst impact on egg shell reproduction, DDE, is not, unlike DDT itself, easily confused with PCB. Thus studies limited to DDE have never involved confusion. (Bibli. 88, Supp. App. 151). Last of all, Anderson, *et al.* have shown, after exhaustive statistical analysis of birds containing both PCB and DDE residues, that DDE correlated better to egg shell thinning than did PCB (Bibli. 277; Supp. App. 235). Thus, Counsel for the Secretary cannot pass the harm caused by DDT off onto PCB.

#### **D. DDT Is Not Needed In The United States To Safeguard Human Health.**

Respondents continue to raise the spectre of malaria and other exotic diseases to bolster their arguments for inaction (Res. Brief 47-50). However, it is clear that the malaria problem is foreign to the United States and thus involves an issue not the subject of this suit. In fact, Counsel for the Secretary indicates that DDT is only to be held in reserve for future local outbreaks "should they occur" (Res. Brief 49). As noted above the real issue does not involve human health or protection of food crops. The main use

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<sup>18</sup> For example, Burdick's classic demonstration of DDT's adverse effects on trout reproduction used a colorimetric method called the Schechter-Haller technique (Bibli. 28, Supp. App. 144).

of DDT is for spraying cotton; and the importance that DDT has had in fighting malaria should not be permitted to obscure this fact.

James W. Moorman  
2008 Hillyer Place, N.W.  
Washington, D. C. 20009

Charles R. Halpern  
2008 Hillyer Place N.W.  
Washington, D. C. 20009

*Attorneys for  
Environmental Defense Fund,  
Incorporated,  
Sierra Club,  
West Michigan Environmental  
Action Council,  
National Audubon Society, and  
Izaak Walton League of America*

Edward Lee Rogers  
Environmental Defense Fund, Inc.  
P.O. Drawer 740  
Stony Brook, New York

Edward Berlin  
Berlin, Roisman and Kessler  
1910 N Street, N.W.  
Washington, D. C. 20036

*Attorneys for  
Environmental Defense Fund,  
Incorporated*

September 8, 1970

A. 1

## ADDENDUM

PR NOTICE 70-19

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL RESEARCH SERVICE  
PESTICIDES REGULATION DIVISION  
WASHINGTON, D. C. 20250

August 18, 1970

### NOTICE TO MANUFACTURERS, FORMULATORS, DISTRIBUTORS AND REGISTRANTS OF ECONOMIC POISONS

Attention: Person Responsible for Federal Registration  
of Economic Poisons

#### Cancellation of Registration of Certain DDT Products

During the past 25 years DDT has been used extensively for the control of a variety of insect pests. In addition to widespread agricultural use it has been invaluable in the control of certain vectors of diseases. Its continued widespread use and relatively slow degradation has resulted in the presence in the environment of low but undesirable levels of DDT. Trace residues can often be detected in areas far removed from sites of application. Presently available scientific evidence indicates that there are adverse effects upon certain species of fish and wildlife as a result of the use of DDT. These factors were recognized by the President's Science Advisory Committee in its report of May 15, 1963, entitled, "Use of Pesticides." The report recommended an orderly reduction in the use of persistent pesticides with their elimination being the goal. The report of the Environmental Pollution Panel of the PSAC entitled, "Restoring the Quality of our Environment" also expressed concern over the persistence of pesticides in the Environment, and recommended more stringent controls.

In November of 1966 the Department of Agriculture requested that a committee be appointed by the National

## A. 2

Research Council to appraise the significance of residues from the standpoint of their effects on the environment. The committee submitted its report in May of 1969, and recommended that immediate attention be given to the problem of buildup of persistent pesticides in the total environment. The Commission on Pesticides and Their Relationship to Environmental Health, appointed by the Secretary of Health, Education, and Welfare, recommended in its report of December 1969, that all uses of DDT be eliminated except those uses essential to the preservation of human health and welfare.

There was published in the Federal Register on November 25, 1969 [34 F.R. 18827] a notice of orders of cancellation of the registrations of products containing DDT for certain uses under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended (7 U.S.C. 135 *et seq.*). The notice also stated that consideration was being given to the cancellation of any other uses of DDT unless it could be shown that certain uses are essential in the protection of human health and welfare and only those uses for which there are no effective and safe substitutes for the intended use would be continued. The notice offered interested persons an opportunity to submit data, views, and comments concerning the matter.

A committee of outside experts appointed by the Department of Agriculture reviewed the data and information regarding essential uses of products containing DDT and issued its report in June 1970. The report of that committee, the data and information submitted pursuant to the Federal Register notice of November 25, 1969, and all other relevant information have been analyzed, and it has been determined that the following uses of DDT are not essential to the protection of the public health and welfare:

I. Beef cattle  
Goats  
Sheep  
Swine

Seasoned lumber  
Finished wood products and buildings

### A. 3

Commercial, institutional and industrial establishments including non-food areas in food processing plants and restaurants (does not include industrial fabric treatments for control of carpet beetles and clothes moths)

II. Uses on the following crops except for soil surface application or for treatment of seedlings:

Blackberry	Pear
Boysenberry	Plum
Dewberry	Prune
Loganberry	Quince
Blueberry	Mango
Apple	Cabbage
Cherry	Cauliflower
Peach	Collards
Nectarine	Kale
Apricot	Kohlrabi
Almonds	Okra
Pecans	Parsnips
Walnuts	Peas (garden)
Broccoli	Peas (blackeye)
Brussel sprouts	Rutabaga
Celery	Safflower
Eggplant	Asparagus
Melons	Table beet
Pumpkin	Mustard greens
Radish	Turnip
Huckleberry	Potatoes
Gooseberry	Cucumbers
Raspberry	Spinach
Strawberry	Hemlock
Currant	Larch
Squash	Pines
Swiss chard	Spruce
Hardwood trees	
Flowers and ornamental plants in commercial plantings (home use previously cancelled)	
Lawn and ornamental turf areas (home use previously cancelled)	

A. 4

Treatments for control of pests of public health significance and pests subject to State/Federal quarantines are not cancelled if labeling restricts such applications to use only under the direction of public health officials or State or Federal quarantine officials.

Final determinations have not been made concerning the essentiality of the other uses of DDT. A final determination as to whether each of the other uses is essential in the protection of human health and welfare will be made after a review in accordance with the Interdepartmental Agreement for Protection of the Public Health and the Quality of the Environment in Relation to Pesticides. A notice concerning these determinations will be issued as soon as such review is completed.

In view of the above, and in accordance with the provisions of Section 4c of the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 135b(c)), it has been determined that all registrations of DDT products bearing directions for any use or uses listed above, should be cancelled for the reason that continued registration of these products is contrary to the provisions of Section 2z(2) (c), 2z(2) (d), and 2z(2) (g) of the Act (7 U.S.C. 135(z) (2) (c), 135(z) (2) (d), 135z(2) (g)). Accordingly, you are hereby notified that the registrations of these products are cancelled, effective 30 days following receipt of this notice, unless revised labeling is submitted or procedures set forth in Section 4c of the Act are invoked.

Labeling that can be modified to comply with this notice must be submitted to the Registration Branch, Pesticides Regulation Division, Agricultural Research Service, U. S. Department of Agriculture, Washington, D. C. 20250, if continued registration is desired.

Withdrawal or relabeling of stocks of those products not now in the possession or control of the registrants is not considered necessary.

/s/ G. G. Rohwer  
Acting Director





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IN THE  
UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 23,813

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ENVIRONMENTAL DEFENSE FUND, INCORPORATED; SIERRA CLUB;  
WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL; NATIONAL  
AUDUBON SOCIETY; and IZAAK WALTON LEAGUE OF AMERICA,  
*Petitioners,*

v.

CLIFFORD M. HARDIN, Secretary of Agriculture,  
and UNITED STATES DEPARTMENT OF AGRICULTURE,  
*Respondents.*

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Petition for Review of Order of the  
United States Department of Agriculture

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REPLY BRIEF AND SUPPLEMENTAL MEMORANDUM  
FOR THE PETITIONERS

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JAMES W. MOORMAN  
CHARLES R. HALPERN  
2008 Hillyer Place, N. W.  
Washington, D. C. 20009

*Attorneys for*

Environmental Defense Fund, Incorporated; Sierra Club; West Michigan Environmental Action Council; National Audubon Society; and Izaak Walton League of America

United States Court of Appeals  
for the District of Columbia Circuit

MAR 17 1970

CLERK

EDWARD BERLIN  
Berlin, Roisman and Kessler  
1910 N Street, N. W.  
Washington, D. C. 20036

*Attorney for*

Environmental Defense Fund, Incorporated



(i)

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Petition for Review of Order of the  
United States Department of Agriculture

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REPLY BRIEF AND SUPPLEMENTAL MEMORANDUM  
FOR THE PETITIONERS

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INTRODUCTION

In their answering brief Respondents have refused to argue the merits of their decisions (1) not to suspend DDT registrations, and (2) not to issue Section 4c notices to begin proceedings to cancel DDT registrations.<sup>1</sup> In addition, while Respondents continue to raise the issue of the standing of the Petitioners to obtain review, they did not devote any argument to that point. Respondents only argued their contention that this Court cannot review Respondents' action on the ground that it is not a final order. Petitioners will, therefore, address primarily the final order point, but

<sup>1</sup>Such a refusal to present an argument on the merits "may be tantamount to a confession of error." *Hungerford v. United States*, 307 F.2d 99, 102, n.5 (9th Cir. 1962).



will also review several standing cases which have been issued since Petitioners filed their Brief.<sup>2</sup>

In addition, Petitioners will respond to the Court's request, transmitted to counsel by the Clerk on March 5, 1970, for a Supplemental Memorandum addressed to certain aspects of this Court's jurisdiction.

## ARGUMENT

### I

#### THIS COURT MAY REVIEW FINAL ORDERS UNDER FIFRA OTHER THAN THOSE WHICH COME AT THE END OF A SECTION 4c PROCEEDING

##### A. Respondents Have Finally Denied the Petitioners' Requests and Judicial Review Is Appropriate

Respondents denied the Petitioners' request for immediate suspension and, with the exception of four uses of DDT, denied Petitioners' request that Section 4c notices issue initiating cancellation proceedings. Respondents' denial is embodied in three documents (App. 34-45): (1) Respondents' letter of December 11, 1969, to Petitioners, (2) Respondents' Section 4c notice of November 20, 1969, for four uses of DDT, and (3) Respondents' notice of November 25, 1969, (34 F.R. 18827), inviting comment from the public at large on "any other uses of DDT." These documents, read together, clearly establish that the Respondents finally disposed of Petitioners' requests. The Petition has been rejected and is no longer under active consideration. The Respondents nowhere come to grips with these basic facts.

The Respondents' order, denying the relief sought by Petitioners, is reviewable under Section 4d of FIFRA. The first sentence of Section 4d of FIFRA says:

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<sup>2</sup>Petitioners also note Respondents' unsupported statement (Brief for Respondents, p. 6, n. 3) that the principal uses of DDT as to which Respondents have not taken any action involves food crops. In fact, the largest use of DDT in the United States is for cotton production.

"In case of actual controversy as to the validity of *any order under this section*, any person who will be adversely affected by such order may obtain judicial review by filing in the United States Court of Appeals . . . a petition praying that the order be set aside in whole or in part." (Emphasis added.)

The action of Respondents in denying the relief requested is an order under this section.<sup>3</sup> Petitioners asked for and were denied two forms of Section 4c relief.

Respondents assert that only orders issued after Section 4c proceedings are reviewable. It is, of course, true that such orders are reviewable under Section 4d. Respondents do not, however, cite any authority to support their theory that judicial review of other orders issued by Respondents under Section 4 of FIFRA is precluded.

While the order in this case does not come at the end of Section 4c proceedings, the facts are that Respondents have never completed a Section 4c proceeding and, obviously, have never issued an order following such proceedings.

With regard to cancellation, the House Government Operations Committee reported on November 13, 1969, that Respondents "*never* secured cancellation of a registration in a contested case" (emphasis in original) and that "when registrants receiving cancellation notices requested hearings or studies, prosecution of the cancellation was halted and the product left on the market."<sup>4</sup> With regard to initial registrations, Respondents have allowed the registration of at least 1,600 products since Section 4c was added to FIFRA over the objections of the Public Health Service without initiating Section 4c proceedings.<sup>5</sup> In ad-

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<sup>3</sup>See definition of order in 5 U.S.C. § 551(b) (Brief for Petitioners, p. 32).

<sup>4</sup>Pp. 15-16, Deficiencies in Administration of Federal Insecticide, Fungicide, and Rodenticide Act, H. Rept. No. 91-637, 91st Cong., 1st Sess. (hereafter cited H. Rept. 91-637).

<sup>5</sup>H. Rept. 91-637, *supra*, at 14, 36-37.

dition, the Respondents have only used that power to suspend *once* and in fact left products with identical active ingredients on the market that time.<sup>6</sup>

Thus, it appears to be Respondents' practice to decide these matters in favor of manufacturers without issuing an order following Section 4c proceedings as they insist on here. Respondents' denial of Petitioners' request is not only final, it is as final an order as has ever been produced by Respondents under FIFRA. Respondents' position in this case, therefore, when put in the context of the actual way Respondents administer FIFRA, would deny to Petitioners the right of review in this Court that Congress intended them to have.

**B. Courts of Appeals May Review Orders of Administrative Agencies Which Are Not Based On Formal Hearings and Are Not "Affirmative" Orders**

Courts of Appeals may, under direct review statutes, review final orders that are not based on formal hearings. Petitioners cited several cases where Courts of Appeals (Brief, pp. 33-34), including this Court, reviewed such orders.<sup>7</sup> In each case cited, the effect of the order reviewed was similar to the order in this case in that the agency's denial of a prehearing request set legal consequences. Of great significance is the fact that several of the cases cited involve review of agency orders deny-

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<sup>6</sup>H. Rept. 91-637, *supra*, at 16.

<sup>7</sup>*Isbrandtsen v. United States*, 93 U.S. App. D.C. 293, 211 F.2d 51 (1954); *Cities Service Gas Co. v. F.P.C.*, 255 F.2d 860 (10th Cir. 1958); *Trailways of New England, Inc. v. C.A.B.*, 412 F.2d 926 (1st Cir. 1969); *Trans-Pacific Freight Conference of Japan v. F.M.B.*, 112 U.S. App. D.C. 290, 302 F.2d 875 (1962); *Phillips Petroleum v. F.P.C.*, 227 F.2d 470 (10th Cir. 1955), *cert. denied*, 350 U.S. 1005 (1955); *Algonquin Gas Transmission Co. v. F.P.C.*, 201 F.2d 334 (1st Cir. 1953).

ing or granting suspension which were similar to the denial of suspension in this case.<sup>8</sup>

Respondents' insistence that it is improper for the Court of Appeals to review their order in this case seems to be mistakenly rooted in the now discarded negative order concept. Respondents complain (Brief for Respondents, p.20) that Petitioners are not asking this Court "to review an affirmative order . . . ." The Supreme Court has just this past December again rejected the negative-affirmative order distinction. *City of Chicago v. United States*, \_\_\_\_ U.S. \_\_\_\_, 90 S.Ct. 309 (1969).<sup>9</sup>

In *City of Chicago*, two railroad companies had filed notices with the ICC of the discontinuation of interstate passenger trains. The ICC opened investigations of the discontinuances, but found that continued operation of the trains was not required by public convenience and necessity and entered orders terminating its investigations. The City of Chicago and other interested parties sought review before a special three judge district court under 28 U.S.C. § 1336(a). The three judge court held that the ICC's action was not a reviewable order and a direct appeal to the Supreme Court followed.

The Court noted that the decision of the ICC not to challenge the discontinuance was on the merits and as much an order as an order directing continuance of service, in which event the Court said the carrier could certainly obtain review. The Court held the close of the investigation to be a reviewable order.

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<sup>8</sup> Respondents cite only one case where it was held that an action taken before a hearing was not a reviewable order. *Mustain v. United States*, 314 F.2d 113 (10th Cir. 1963). Of importance is the fact that the Court in *Mustain*, citing *Columbia Broadcasting System v. United States*, recognized the principle that a reviewable final order can come before a statutory hearing.

<sup>9</sup> See *Rochester Telephone Corp. v. United States*, 307 U.S. 125, 142-143, 59 S.Ct. 754, 763-765 (1939).

As in this case, the final reviewable orders in *City of Chicago* were orders prior to any formal administrative hearing such as respondents here insist on. The fact the ICC preserved the *status quo*, giving its decision not to challenge the discontinuance a negative caste, made its action no less a reviewable order. In like fashion, Respondents' "negative order"—refusing to initiate Section 4c proceedings—is a final reviewable order.<sup>10</sup>

## II

### PETITIONERS HAVE STANDING TO OBTAIN REVIEW

Petitioners are five major environmental protection and conservation organizations. They seek relief from Respondents and this Court from what they consider to be one of our most serious environmental problems under a statute designed to deal with that problem.

In its recent decision in *Scanwell Laboratories, Inc. v. Thomas*, No. 22,863 (D.C. Cir., February 13, 1970), this Court noted the possibility that capricious litigants might attempt to exploit the broader rules on standing with frivolous litigation. (Slip Op., p. 25) It is clear, however, that the Petitioners in the instant case—representing as they do some of the most substantial and well established conser-

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<sup>10</sup> Respondents assert at the end of their Brief (p. 22) that their denial of Petitioners' request is not a final order because it was not signed by the judicial officer. (Respondents, however, go on to say that had the judicial officer signed an order it would make no difference). The Director of the Pesticide Regulation Division, Dr. Harry Hays, is clearly the officer of Respondent Department of Agriculture charged with the responsibility of enforcing FIFRA (see 7 CFR 362.3). He in fact issued the Section 4c notice for the four uses of DDT and the notice in the Federal Register for all other uses. He is clearly the party who would issue a suspension notice to registrants of DDT products, not the judicial officer. He is also under the direct supervision of Respondent Hardin. Dr. Bayley, who signed the December 11 order in response to the Petition, works directly in the office of Respondent Hardin, and handled this matter for him.

vation interests in the country—have standing to litigate this important environmental issue. By any standard, Petitioners must be classified as “meritorious sheep,” not “capricious goats.” *Ibid.*

Petitioners invite the Court’s attention to two opinions of the Supreme Court on standing handed down last week, *Association of Data Processing Service Organizations, Inc. v. Camp*, 38 L.W. 4193 (March 3, 1970), and *Barlow v. Collins*, 38 L.W. 4195 (March 3, 1970). As stated by the Supreme Court in *Data Processing*, the question of standing is “whether the interest sought to be protected by the complainant is arguable within the zone of interests to be protected or regulated by the statute or constitutional guarantee in question.” (38 L.W. at 4194.) The interests sought to be protected by Petitioners are clearly within the zone of interests protected by FIFRA. The Court explicitly recognized “that interest, at times, may reflect ‘aesthetic, conservational, and recreational’ as well as economic values” and cited with approval the two cases principally relied upon by the Petitioners, *Scenic Hudson Preservation Conference v. F.P.C.*, 354 F.2d 608 (2d Cir. 1965), and *Office of Communication of United Church Of Christ v. F.C.C.*, 123 U.S. App. D.C. 328, 359 F.2d 994 (38 L.W. at 4194). Also of interest was the following statement of the Court:

“The right of judicial review is ordinarily inferred where congressional intent to protect the interests of the class of which the plaintiff is a member can be found; in such cases, unless members of the protected class may have judicial review the statutory objectives might not be realized.” *Barlow v. Collins*, 38 L.W. at 4197-98.

Petitioners also invite the Court’s attention to two of its own recent opinions on the standing question, *Scanwell Laboratories, Inc. v. Thomas, supra*, and *People v. United States Department of Agriculture*, No. 22,574 (D.C. Cir., February 2, 1970). These cases strongly reinforce the early holdings of this Court in *Curran v. Laird*, No. 21,040 (November 12, 1969), and *Office of Communication of United*

*Church of Christ v. F.C.C., supra.* The principle that an appropriate citizen group can obtain standing under statutes designed to protect the public interest is now beyond question. Petitioners have conclusively demonstrated (Brief for Petitioners, pp. 26-31) that FIFRA was designed to protect the public from hazardous pesticides, that Congress intended that appropriate public representatives would have standing under FIFRA, and that Petitioners are in fact appropriate representatives of the public interest.

### III

#### THIS COURT HAS JURISDICTION UNDER 5 U.S.C. § 706(1) AND 28 U.S.C. § 1651, ANCILLARY TO ITS JURISDICTION TO REVIEW ORDERS UNDER SECTION 4d OF FIFRA, TO FASHION AN ORDER TO COMPEL PROMPT AGENCY ACTION ON THE OCTOBER 31, 1969 PETITION

On March 11, 1970, this Court asked the parties to submit supplemental memoranda "directed to whether this Court has jurisdiction to fashion an order to compel prompt agency action on the October 31, 1969, petition filed with the Secretary of Agriculture under the provisions of 5 U.S.C. Sec. 706(1)."

Petitioners' position, set forth in their Brief (pp. 31-37) and Reply Brief (*supra*, p. 2), is that Respondents have in fact issued a final order on the Petition and that that order is reviewable under Section 4d of FIFRA in this Court. Petitioners will further contend: (a) if such an order has not been issued, the Court has jurisdiction to compel the Respondents to issue a final order responding to the Petition; and (b) the Court has jurisdiction to order the Respondents to issue Section 4c notices, commencing the administrative proceedings which could lead to cancellation of DDT registrations.

#### A. The All Writs Statute

This Court has jurisdiction under Section 4d of FIFRA to review any order issued by Respondents under Section 4. The All Writs Statute, 28 U.S.C. § 1651, confers addi-



tional jurisdiction on this and other federal courts to "issue all writs necessary and appropriate in aid of their respective jurisdictions and agreeable to the usages and principles of law." Assuming, *arguendo*, that Respondents failed to issue an order in response to Petitioners' request, their inaction would effectively defeat the Section 4d review jurisdiction of this Court. In such cases this Court has jurisdiction to fashion an order compelling the agency to act in aid of its jurisdiction under Section 4d of FIFRA.

When a reviewing court's statutory jurisdiction to review the decisions of a lower tribunal might be defeated by the lower tribunal's improper failure to act, the court has jurisdiction to compel the lower tribunal to act, notwithstanding the fact that its statutory review jurisdiction has not yet attached. In *McClellan v. Carland*, 217 U.S. 268 (1910), the Supreme Court firmly established this principle. In that case a federal circuit court had stayed a proceeding before it while a related case went forward in a state court. A petition for a writ of mandamus was filed in the circuit court of appeals to compel the circuit court to proceed with and determine the stayed action. The circuit court of appeals denied the relief requested and dismissed the petition. The Supreme Court reversed the circuit court of appeals, and held that the circuit court of appeals had jurisdiction to issue the writ under the predecessor statute to the All Writs Statute. The Supreme Court rejected the argument that the All Writs Statute applies only after jurisdiction attaches. Rather, the Court held that the circuit court of appeals had jurisdiction to compel the lower tribunal "to proceed to final judgment in order that [the] court may exercise the jurisdiction of review given by law." 217 U.S. at 280.

The jurisdiction conferred on appellate courts under the All Writs Statute was elaborated upon in *F.T.C. v. Dean Foods Co.*, 384 U.S. 597 (1966). In *Dean Foods*, the Supreme Court dealt with a problem coming out of an administrative agency. Under the Clayton Act, 15 U.S.C. § 45, the courts of appeals have limited power to review decisions of the FTC, after the FTC has gone through specified stat-

utory procedures and issued a final order. In *Dean Foods*, the FTC sought to invoke the jurisdiction of the Court of Appeals prior to the statutory proceedings to obtain an order that would preserve the *status quo* and assure the Court an opportunity to exercise its jurisdiction meaningfully under the statutory review procedures. The Supreme Court held that courts of appeals had jurisdiction under the All Writs Statute to issue an order in aid of its jurisdiction notwithstanding the fact that final agency action had not been taken and review under the Clayton Act's provisions was unavailable. The Court relied upon *McClellan v. Carland*, *supra*, in reaching this result. As the Fourth Circuit said in *American Chain & Cable Co. v. Federal Trade Commission*, 142 F.2d 909, 912 (4th Cir. 1944), on direct review of a Federal Trade Commission matter:

"... [M]andamus from a court is an appropriate remedy to require an administrative commission to exercise the power with which it is vested.... [W]here it is given jurisdiction to review an administrative commission there is no reason why the power should not be exercised in the same way as where reviewing power is given over a court."

Under the *McClellan* and *Dean Foods* decisions, it is clear that this Court has jurisdiction under the All Writs Statute to fashion an order compelling prompt action by respondents on the October 31 Petition. The continuing failure of Respondents to issue an order—if past actions of Respondents do not constitute an order—would effectively defeat the jurisdiction of this Court to review the decisions of Respondents under Section 4d of FIFRA. In a variety of contexts the courts of appeals have issued orders to lower tribunals—courts and agencies—to avoid such a result.

#### B. Jurisdiction Under 5 U.S.C. § 706(1)

The Administrative Procedure Act outlines the scope and nature of judicial oversight of the action of administrative agencies. Section 10(e), 5 U.S.C. § 706(1), provides, in relevant part:

"The reviewing Court shall (1) compel agency action unlawfully withheld or unreasonably delayed . . . ."

Under this statute, litigants are given a remedy for agency inaction; and the courts are given jurisdiction to compel an agency to issue an order when it is bound by law to do so. In the instant case, assuming that no order has been issued in response to the Petition of October 31, 1969, Section 706(1) gives this Court jurisdiction to compel the issuance of such an order.

Jurisdiction of the courts under Section 706(1) complements the courts' jurisdiction under the All Writs Act. Indeed, if the courts did not have such power in the present context, reviewing jurisdiction under Section 4d of FIFRA would be defeated. The clear intent of Section 706(1) is to permit such judicial intervention to compel action in instances in which the administrative process is unreasonably delayed.<sup>11</sup>

This Court has in fact assumed jurisdiction to consider the grant of Section 706(1) relief in a similar case, *Harvey Radio Laboratories, Inc. v. United States*, 110 U.S. App. D.C. 81, 289 F.2d 458 (1961). In *Harvey*, an application for a radio license was delayed in the FCC while several rule-making proceedings were underway. The applicant's request that the agency act was denied. The applicant sought direct review in this Court "on the ground that agency action has been unreasonably delayed in contravention of Section 10 of the Administrative Procedure Act [5 U.S.C. § 706(1)]" 289 F.2d at 459-60. Asserting that agency inaction is a proper subject of judicial scrutiny, 289 F.2d at 461, the Court exercised its jurisdiction and concluded that the agency delay was not unreasonable on the facts of the case. See also *Kessler v. F.C.C.*, 117 U.S. App. D.C. 130, 356 F.2d

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<sup>11</sup>The Court has, in addition, under its general equitable jurisdiction, the power to issue injunctions to compel administrative agencies to take action without unreasonable delay. *American Broadcasting Co. v. F.C.C.*, 191 F.2d 492 (D.C. Cir. 1951).

673, 684, n. 10 (1963) (court of appeals will order agency to proceed to hearing where delay is excessive).

The analogy with this case is clear. The Court of Appeals has jurisdiction to review directly orders of an agency in both instances. In *Harvey* this Court, which had jurisdiction to review FCC action, entertained a claim under Section 706(1) that such action was unreasonably delayed or unlawfully withheld. Similarly, in the instant case, the Court, which has jurisdiction to review Section 4d orders, can compel Respondents to act promptly on the Petition of October 31, 1969.

The assumption of Section 706(1) jurisdiction by this Court in *Harvey* and *Kessler* has the virtue of avoiding an undesirable split of review between the courts of appeals and the district courts. A Section 706(1) order is properly issued by an appellate court in the present circumstances since review of Respondents' orders issued under Section 4 of FIFRA is in the courts of appeals. Litigants should turn for relief from agency inaction under Section 706(1) to the courts that will have review jurisdiction after a final order. Precedent, commentators, and common sense all militate against bifurcation of review between court of appeals and district court.

In *Foti v. Immigration and Naturalization Service*, 375 U.S. 217 (1963), the Supreme Court set forth the reasons why split review should be disfavored. The Immigration and Nationality Act gives the courts of appeals jurisdiction to review "final orders of deportation" under a specific section of the Act. Foti conceded his deportability in agency proceedings and sought instead a discretionary suspension of the deportation order under a different section of the Act. The issue before the court was whether the denial of the suspension was properly reviewable in the Court of Appeals as a "final order of deportation." The Supreme Court held that the Court of Appeals was the proper forum for review, noting the inconvenience and delay of bifurcated review and the fact that such review was "not the necessary result

from a fair interpretation of the pertinent statutory language." Professor Jaffe approved the *Foti* result and urged consolidation of review in a single court to the greatest extent possible. *Judicial Control of Administrative Action*, p. 422.<sup>12</sup>

Thus, it is clear that this Court has jurisdiction under Section 706(1) to compel agency action with regard to those matters over which it would ultimately have direct review jurisdiction under FIFRA. The matters raised by the Petition of October 31, 1969, are clearly ones which should be ultimately reviewable in the courts of appeals, *i.e.*, deregistration and suspension of DDT registrations.

Section 706(1) is relevant to another aspect of this appeal. In their prayer for relief in this Court, Petitioners requested the Court to set aside the Respondents' order of December 11, 1969, and to order the Respondents to issue Section 4c notices to commence the administrative proceedings which can lead to cancellation. The authority of this Court to compel such agency action, where the Court has jurisdiction under a direct review statute and the action has been unlawfully withheld, is also inherent in Section 706(1). This section explicitly states that courts shall order agencies to take actions unlawfully withheld. The Petitioners have established that the relief requested from Respondents was unlawfully withheld (Petitioners' Brief, pp. 10-26).<sup>13</sup>

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<sup>12</sup>The Supreme Court has since extended the principle of consolidating agency review in a single court to decisions of the Board of Immigration Appeals denying motions to reopen deportation proceedings. *Giova v. Rosenberg*, 379 U.S. 18 (1964).

The policy of keeping in one court all aspects of the review of an agency's action is consistent with the principle that special administrative review statutes, such as Section 4d of FIFRA, "are in *pari materia*" with the Administrative Procedure Act. *Willapoint Oyster Co. v. Ewing*, 174 F.2d 676, 686 (9th Cir. 1949), *cert. denied* 338 U.S. 860, 70 S.Ct. 101, *Miller v. Ribicoff*, 195 F.Supp. 534, 535 (W.D.S.C. 1961), *Goldman v. Folsom*, 246 F.2d 776 (3rd Cir. 1957).

<sup>13</sup>Petitioners observe that if there is any difficulty with a lack of record which impedes the Court in fashioning an order, it may remand

# CONCLUSION

For all the reasons set forth in their Brief and this Reply Brief and Supplemental Memorandum, Petitioners respectfully request this Court to grant the relief sought.

Respectfully submitted.

James W. Moorman

Charles R. Halpern

2008 Hillyer Place, N.W.

Washington, D.C. 20009.

*Attorneys for*

Environmental Defense Fund,  
Incorporated; Sierra Club; West  
Michigan Environmental Action  
Council; National Audubon  
Society; and Izaak Walton  
League of America

Edward Berlin

Berlin, Roisman and Kessler

1910 N Street, N.W.

Washington, D.C. 20036

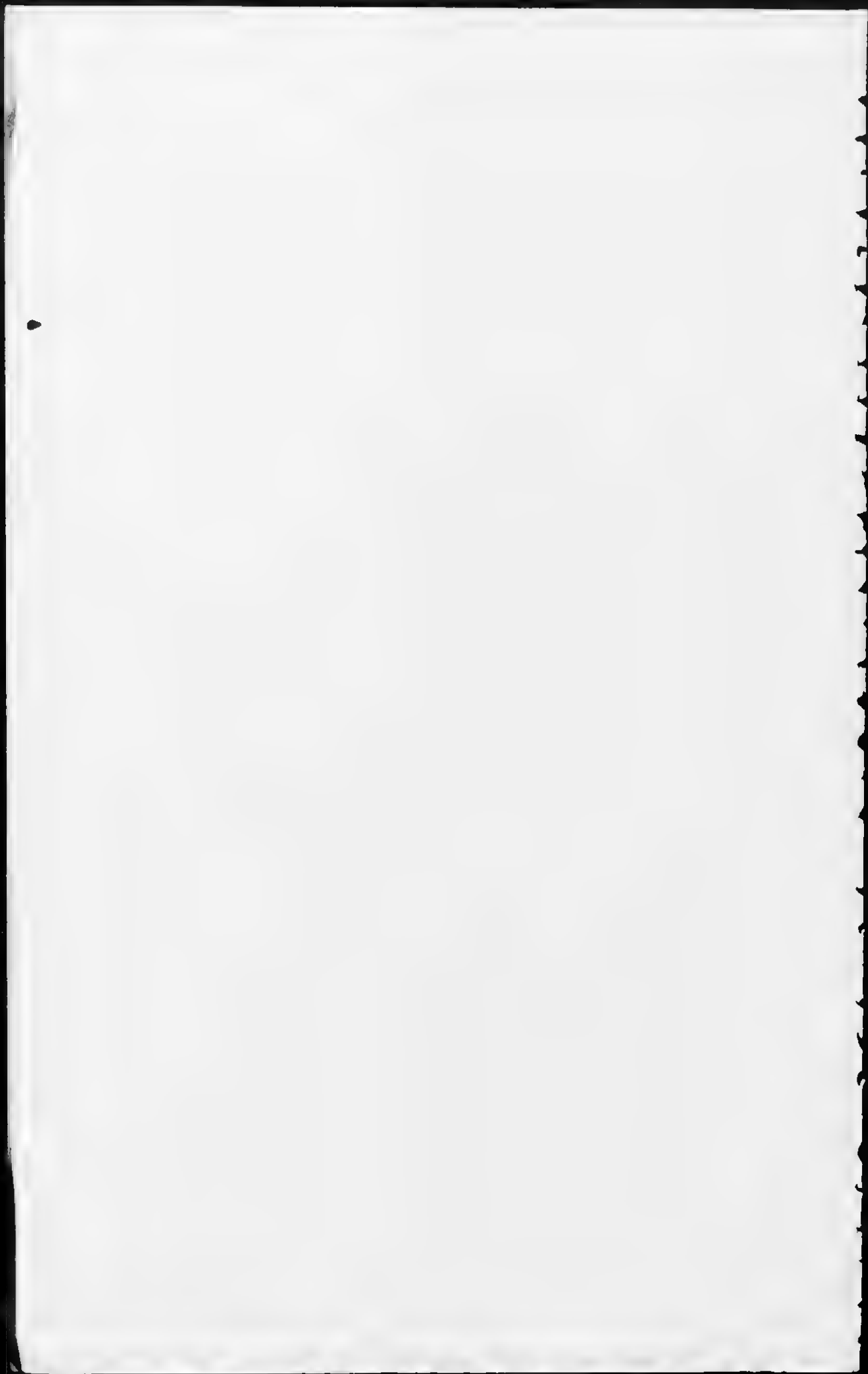
*Attorney for*

Environmental Defense Fund,  
Incorporated

March 11, 1970

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the matter to Respondents under Section 4d of FIFRA to adduce evidence upon such terms and conditions as may seem proper to the Court. There is certainly no need for this Court to conduct an evidentiary hearing; nor is there any warrant for the suggestion that Respondents do not have the authority to conduct such a hearing on remand.





IN THE  
UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

United States Court of Appeals  
for the District of Columbia Circuit

No. 23813

Nathan J. Paulson  
CLERK

THE ENVIRONMENTAL DEFENSE FUND, INCORPORATED; SIERRA CLUB;  
WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL; and NATIONAL  
AUDUBON SOCIETY,

Petitioners,

STATE OF NEW YORK and IZAAK WALTON LEAGUE OF AMERICA,

Intervenors,

-against-

CLIFFORD M. HARDIN, Secretary of Agriculture, and UNITED  
STATES DEPARTMENT OF AGRICULTURE,

Respondents,

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA,

Intervenor.

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PETITION FOR REVIEW OF ORDER OF THE  
UNITED STATES DEPARTMENT OF AGRICULTURE

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REPLY BRIEF FOR INTERVENOR  
STATE OF NEW YORK

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LOUIS J. LEFKOWITZ  
Attorney General of the  
State of New York  
Attorney for Intervenor  
New York State

PHILIP WEINBERG  
Assistant Attorney General

PAUL S. SHEMIN  
Assistant Attorney General

GORDON P. MacDOUGALL  
of Counsel

IN THE  
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PETITION FOR REVIEW OF ORDER OF THE  
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REPLY BRIEF FOR INTERVENOR  
STATE OF NEW YORK

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### PRELIMINARY STATEMENT

Respondents, despite this Court's May 28, 1970 decision disposing of the matter, have chosen to reiterate their arguments concerning jurisdiction. Intervenor, not wishing to burden the Court with a rehashing of old arguments, has replied to respondents' arguments in a general way, concentrating on respondents' basic argument, rather than specific points.

Respondents argue in their brief that the record presented to the Court is inadequate for review under the substantial evidence rule. Intervenor therefore has included an argument demonstrating that the record as presented is inadequate and should be supplemented, so that this Court may review respondents' order under the proper standard.

### ADDITIONAL ISSUES PRESENTED FOR REVIEW

- I. THE COURT HAS JURISDICTION TO REVIEW THE ORDER ISSUED BY RESPONDENTS AS A RESULT OF RESPONDENTS' INFORMAL PROCEEDINGS.
- II. THE RECORD AS PROVIDED BY RESPONDENTS IS INADEQUATE FOR PROPER REVIEW, AND SHOULD BE SUPPLEMENTED BY ALL MATTER CONSIDERED BY RESPONDENTS, AND MATTER AVAILABLE TO BUT NOT CONSIDERED BY RESPONDENTS.

I. THE COURT HAS JURISDICTION TO REVIEW THE ORDER  
ISSUED BY RESPONDENTS AS A RESULT OF RESPONDENTS'  
INFORMAL PROCEEDINGS.

Respondents contend that the direct review jurisdiction conferred upon the Courts of Appeals by Section 4d of FIFRA is limited to orders entered at the conclusion of the administrative proceedings prescribed by Section 4c with respect to the cancellation of an economic poison registration. This contention was rejected by this Court in their opinion of May 28, 1970, and does not merit extended consideration here.

Intervenor does feel that it is appropriate, however, to reply in a general way to the arguments of respondents on this issue.

As Intervenor stated in its brief filed with the Court<sup>1</sup>, respondents, instead of considering the various reports and comments of experts as to the dangers of DDT within the framework of Section 4c proceedings, as required by FIFRA, chose to make their determination as to whether or not DDT registrations should be cancelled

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1. Brief for Intervenor State of New York, at pp. 20-28.

through the use of informal agency proceedings other than those contemplated by the statute. These informal proceedings consisted of advisory committee reports<sup>2</sup>, notices in the Federal Register apprising interested parties that informal cancellation proceedings were under way and that comments regarding proposed cancellation notices would be accepted<sup>3</sup>, reports and recommendations by outside experts brought in by respondents<sup>4</sup>, and a review by respondents themselves of all the information and recommendations compiled as a result of their initiation of informal proceedings.<sup>5</sup>

The procedures employed by respondents, although dilatory and outside the scope of the statute, were certainly adequate to provide all interested parties with an opportunity to have their views received, and to provide respondents with expert information sufficient to justify a final determination as to whether or not the DDT registrations should be cancelled. Thus it is fatuous for respondents to contend the record does not permit review by this Court.

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2. Respondents' "Statement", VI-3, at p. 6.

3. Ibid., VI-6, at p. 7.

4. Ibid., VI-7, at p. 7.

5. "...further action with respect to cancellations should await completion of the use by use evaluations presently in progress." Ibid., at p. 1.

Respondents' brief emphasizes that the Section 4d judicial review procedures contemplate the entry of a final order as a result of Section 4c hearings and accompanying proceedings:

"The short of the matter is that § 4d was tailor-made to fit judicial review of § 4c final orders on the cancellation or denial of registrations."<sup>6</sup>

Having ignored the existence of Section 4c cancellation proceedings for several years, respondents now find it convenient to refer to the Section in order to prevent judicial review of the informal proceedings they held in lieu of Section 4c proceedings. Their attempt to avoid judicial review through this ruse deserves short shrift.

Under the intended FIFRA scheme for cancellation of registrations, an initial determination by respondents regarding cancellation proceedings would not establish a factual record sufficient for review by this Court. Respondents, however, have not followed the intended FIFRA scheme. What should have been merely an initial determination has in fact been a non-statutory final

determination, but rather, that respondents have duplicated in large part the mandated Section 4c proceedings by holding their own, informal, proceedings.

Because of this, the language of Section 4d in certain areas does not dovetail neatly with the proceedings before this Court for review. The fact remains, however, that the operative phrase of Section 4d refers to

"a case of actual controversy as to the validity of any order under this section..."<sup>7</sup>

Inconsistencies between this phrase as here applied and any other phrases of Section 4d are of respondents' own making. Had they used Section 4c cancellation procedures instead of their own informal proceedings, they would not now feel constrained to claim that Section 4d does not seem to be "tailor-made" to fit the requirements for review in the instant case.

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7. FIFRA Section 4d, 7 U.S.C. § 135b (d), 61 Stat. 168, as amended.



II. THE RECORD AS PROVIDED BY RESPONDENTS IS INADEQUATE FOR PROPER REVIEW, AND SHOULD BE SUPPLEMENTED BY ALL MATTER CONSIDERED BY RESPONDENTS, AND MATTER AVAILABLE TO BUT NOT CONSIDERED BY RESPONDENTS.

Respondents main brief suggests that all that was needed to render their determination was the material submitted by them in their record. In fact, however, the record as provided by respondents is defective on two counts. First, it contains only the materials upon which respondents based their decision, and excludes matter which respondents considered but upon which they did not base their decision. Second, respondents, by refusing to consider all "available scientific evidence",<sup>8</sup> have failed to compile an adequate record for decision and review. The Court should direct that all such matters be filed as a supplement to the record under FIFRA Section 4d and 28 U.S.C. 2112(b).

- A. The record is incomplete in that it does not contain all the materials considered by respondents.

Various communications between counsel for respondents and petitioners, ending on June 26, 1970, reveal the following:

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8. Opposition Of Respondents To Petitioners' Motion To Supplement The Record, p. 1.

"[T]he material which will be supplied to the Court on June 29 will include all of the documentary matter upon which the Secretary's decision is based. [Emphasis theirs]. It is quite possible that the Secretary considered matter which is not being furnished to the Court since his decision is not based upon it."<sup>9</sup>

In their Submission of Materials on June 29, 1970, respondents refer somewhat ambiguously to "the materials that constitute the basis for administrative decisions."<sup>10</sup>

In opposing petitioners' motion to supplement the record, respondents, while stating that they had re-evaluated the available scientific evidence, admitted to having filed with the Court only "the materials on which [they] based [their] decisions regarding DDT."<sup>11</sup> Respondents also stated that:

"[t]he sole criterion that can be applied to test the rationality of [respondents'] conclusion is analysis of the [materials] upon which [respondents] predicated [their] decision."<sup>12</sup>

- 
9. Letter of June 26, 1970, from Morton Hollander. See Exhibit B attached to petitioners' motion to supplement the record.
  10. Submission Of Materials Pursuant To The Courts' Order And Statement Of Reasons Supporting Agency Action, p. 1.
  11. Respondents' Opposition, p. 1, op. cit. at note 8.
  12. Respondents' Opposition, p. 1, op. cit. at note 8.

Yet this conclusion is at direct odds with specific FIFRA law, and general administrative law. It amounts to supplying the review Court with only the material which respondents have unilaterally decided to be favorable to them. It is tantamount to juggling the record to omit whatever respondents find embarrassing.

FIFRA specifically provides for judicial review of orders issued by respondents. Section 4d requires that respondents:

"file in the court the record of the proceedings on which he based his order, as provided in section 2112 of title 28, United States Code."

\* \* \*

"The findings of [respondents] with respect to questions of fact shall be sustained if supported by substantial evidence when considered on the record as a whole...".<sup>13</sup> (Emphasis added).

Clarification of Section 4d is provided by 28 U.S.C. 2112(b):

"The record to be filed in the court of appeals in such a proceeding shall consist of the order sought to be reviewed or enforced, the findings or report

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13. FIFRA Section 4d, 7 U.S.C. § 135b(d), 61 Stat. 168, as amended.

upon which it is based, and the pleadings, evidence, and proceedings before the [administrative body]...If, however, the correctness of a finding of fact by the [administrative body] is in question all of the evidence before the [administrative body] shall be included in the record..."<sup>14</sup>

There can be no dispute as to the correct interpretation of this language. If a finding of fact by an administrative agency (such as respondents) is disputed, the record for review must contain "all of the evidence" before the administrative body.

The law is settled as to the meaning of "the record as a whole". In 1951 the Supreme Court, in an oft-quoted case,<sup>15</sup> stated:

"The substantiality of evidence must take into account whatever in the record fairly detracts from its weight."

\* \* \*

"[A] reviewing court is not barred from setting aside a Board decision when it cannot conscientiously find that the evidence supporting that decision is

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14. 28 U.S.C. 2112(b).

15. Universal Camera v. NLRB, 340 U.S. 474 (1951).

substantial, when viewed in the light that the record in its entirety furnishes, including the body of evidence opposed to the Board's view."16

There can be no serious claim by respondents that FIFRA law, as amplified by 28 U.S.C. 2112(b), does not require a full and complete record, comprising all the evidence before respondents, to be submitted to the Court for review.

B. The record is incomplete in that it does not contain all the evidence available to respondents.

Just as an administrative body can prejudice the outcome of an investigation and decision subject to review by omitting from the record for review evidence adverse to the position taken by it, so, too, where the decision-making process is informal in nature and does not contain any guidelines for the presentation and collection of evidence, an agency can prejudice the result by failing to consider, in making its decision, all the evidence at large dealing with the matter. Such is the

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16. Ibid. at 488.

case with respondents' handling of its investigation into the safety and effects of DDT.

While the record as a whole normally consists of only the evidence considered in making the determination, rules defining the record for review purposes have meaning only insofar as there are rules setting out adequate procedures for the gathering and presentation of evidence prior to the initial administrative determination. FIFRA delineates very clearly the procedures to be followed. Unfortunately, for reasons which respondents may or may not reveal to intervenor, respondents have refused to use the required FIFRA procedures, instead conducting their own informal, unstructured investigation and evaluation of DDT. Judicial review under FIFRA should normally be based on a record established by a public hearing, during which all parties would have an opportunity to submit evidence relevant and material to the issues.<sup>17</sup> By conducting a non-statutory investigation of DDT, respondents have obligated themselves to review all the scientific literature relevant and available. All materials published prior to

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17. FIFRA Section 4c, op. cit., at note 13.

respondents' final determination were "available" to respondents. Clearly, this was the case regarding the materials submitted by petitioners to respondents prior to respondents' final determination in the matter.<sup>18</sup>

"The agency does not do its duty when it merely decides upon a poor or non-representative record...[T]he agency owes the duty to investigate all the pertinent facts, and to see that they are adduced when the parties have not put them in...[If the record] is not sufficient, it should see the record is supplemented before it acts."<sup>19</sup>

Respondents' duty to consider all available evidence is the only available frame of reference relevant to an understanding of the meaning of "the record as a whole". In such a situation, respondents must be conclusively presumed to have canvassed the field and considered all the relevant reports regarding DDT. The whole record for review should therefore consist of the complete body of available or published scientific knowledge on the question.

18. See Exhibit A, Petitioners' Motion To Supplement The Record.

19. Isbrandtsen Co. v. United States, 96 F. Supp. 883, 892 (S.D.N.Y. 1951).



FIFRA, as amplified by 28 U.S.C. 2112(b), provides the Court with the means to remedy respondents' failure to provide the Court with the record necessary for review.

"If there is omitted from the record any portion of the proceedings before the agency... which the court subsequently determines to be proper for it to consider to enable it to review...the order in question the court may direct that such additional portion of the proceedings be filed as a supplement to the record."<sup>20</sup>

Where, as here, the agency conducts its investigation without following the statutory proceedings, the Court under 28 U.S.C. 2112(b) may direct that any relevant matter be filed as a supplement to the record. This Court should do that here, as suggested by petitioners. With this full record before it, it will be plain that respondents have utterly failed to satisfy the mandates of FIFRA to protect the public from the ravages of DDT.

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20. 28 U.S.C. 2112(b).

CONCLUSION

For all the reasons stated herein, Intervenor respectfully requests that this Court grant the following relief:

(a) that the respondents' denial of the Petition of October 31, 1969, be set aside;

(b) that the respondents be ordered immediately to suspend the registrations of all economic poisons that contain DDT, thereby initiating cancellation proceedings under Section 4c of FIFRA; and

(c) that, as an alternative to (b), the respondents be ordered to issue Section 4c notices of cancellation for all economic poisons containing DDT.

Dated: New York, New York  
September 4, 1970

Respectfully submitted,

LOUIS J. LEFKOWITZ  
Attorney General of the  
State of New York  
Attorney for Intervenor  
New York State

PHILIP WEINBERG  
Assistant Attorney General

PAUL S. SHEMIN  
Assistant Attorney General

GORDON P. MacDOUGALL  
of Counsel

CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of September, 1970, copies of the foregoing Reply Brief for Intervenor were served upon the following parties by delivering copies thereof to:

Alan S. Rosenthal, Esq.  
United States Department of Justice  
Washington, D.C. 20530  
Attorney for Respondents

Robert L. Ackerly and Charles O'Conner  
Sellers, Conner & Cuneo  
1625 K Street, N.W.  
Washington, D.C. 20006  
Attorneys for Intervenor Montrose  
Chemical Corporation and Amicus  
Curiae National Agriculture Chemical  
Association

James W. Moorman  
2008 Hillyer Place, N. W.  
Washington, D.C. 20009  
Attorney for Petitioners and Intervenor  
Izaak Walton League of America

\_\_\_\_\_  
GORDON P. MacDOUGALL



BRIEF OF AMICUS CURIAE  
NATIONAL AGRICULTURAL CHEMICALS  
ASSOCIATION

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IN THE  
**United States Court of Appeals**  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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**No. 23,813**

---

ENVIRONMENTAL DEFENSE FUND, INCORPORATED, SIERRA  
CLUB, WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL,  
and NATIONAL AUDOBON SOCIETY, *Petitioners*,  
Izaak Walton League of America, and The State of  
New York, *Intervenors*,

v.

CLIFFORD M. HARDIN, SECRETARY OF AGRICULTURE, and  
UNITED STATES DEPARTMENT OF AGRICULTURE,  
*Respondents*,

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA,  
*Intervenor*.

JOHN D. CONNER  
CHARLES A. O'CONNOR, III  
BUEL WHITE  
1625 K Street, N. W.  
Washington, D. C. 20006

*Matthew S. Sellers*  
*Of Counsel:*  
SELLERS, CONNER and CUNEO  
1625 K Street, N. W.  
Washington, D. C. 20006

Dated: August 31, 1970



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IN THE  
**United States Court of Appeals**

FOR THE DISTRICT OF COLUMBIA CIRCUIT

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No. 23,813

---

ENVIRONMENTAL DEFENSE FUND, INCORPORATED, SIERRA CLUB, WEST MICHIGAN ENVIRONMENTAL ACTION COUNCIL, and NATIONAL AUDOBON SOCIETY, *Petitioners,*

IZAAB WALTON LEAGUE OF AMERICA, and THE STATE OF NEW YORK, *Intervenors,*

v.

CLIFFORD M. HARDIN, SECRETARY OF AGRICULTURE, and UNITED STATES DEPARTMENT OF AGRICULTURE, *Respondents,*

MONTROSE CHEMICAL CORPORATION OF CALIFORNIA, *Intervenor.*

---

**BRIEF OF AMICUS CURIAE  
NATIONAL AGRICULTURAL CHEMICALS  
ASSOCIATION**

---

**STATEMENT OF ISSUES**

1. Is this court's appellate review jurisdiction under FIFRA limited only to review of orders based upon the record of a formal administrative proceeding?
2. Is the record before this court sufficient under FIFRA to confer jurisdiction?

3. Does this court have jurisdiction based upon the record now before it to review the discretionary action taken informally by the Secretary?
4. Should the standard of review by this court, if it reaffirms its jurisdiction over the Secretary's decision not to cancel or suspend DDT registrations, be the "substantial evidence on the record as a whole" test or, alternatively, should the test be whether the decision has a rational basis?
5. Is the Secretary required to issue a cancellation notice and thereby initiate a formal proceeding, as an essential step in exercising his discretion so as to determine whether such cancellation is warranted?

#### INTEREST OF AMICUS

The National Agricultural Chemicals Association (NAC) is a nonprofit membership corporation consisting of companies which produce basic pesticidal chemicals and formulate pesticides therefrom. The shipment of these pesticides in interstate commerce is regulated by the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) which at the present time is administered by the Secretary of Agriculture.

The Mrak Commission estimated that there are some 900 active pesticidal chemicals formulated into over 60,000 pesticides in the United States. Only a small proportion of the members of the National Agricultural Chemicals Association produce DDT as a basic pesticidal chemical or formulate pesticides which include DDT. However, all of its member companies produce pesticidal chemicals or pesticides which are regulated under FIFRA. Accordingly, NAC, and its members have an interest in taking action to assure the equitable and efficient enforcement of FIFRA.

Petitioners and intervenor State of New York in this proceeding urge upon the court interpretations of FIFRA which, if adopted, would be applicable as a matter of

precedent in the regulation of all the pesticides and pesticide chemicals regulated under FIFRA. It is the conviction of amicus that these interpretations, if adopted by the court, would hamper seriously the effective administration of that Act. Consequently, NAC, as a representative of companies which are producing pesticides regulated under FIFRA, wishes to bring to the attention of the court as amicus those reasons why in its opinion the court should not grant the relief requested in the petition before it.

### ARGUMENT

#### I. THIS COURT DOES NOT HAVE JURISDICTION TO REVIEW THE SECRETARY'S DECISION NOT TO SUSPEND OR CANCEL DDT REGISTRATIONS BECAUSE IT IS NOT AN ORDER BASED UPON THE RECORD OF A FORMAL ADMINISTRATIVE RECORD.

##### SUMMARY OF ARGUMENT

This court, since it derives its authority solely by act of Congress, is a court limited by statute in its jurisdiction.<sup>1</sup> Statutory appellate review jurisdiction over the actions of the Secretary of Agriculture pursuant to his authority in FIFRA<sup>2</sup> is created and limited by Section 4.d. of FIFRA.

Section 4.d. confers jurisdiction upon this court to review only orders which are based upon the record which

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<sup>1</sup> Amicus realizes that this court in its prior decision in this proceeding held that the decision of the secretary not to suspend and to cancel registrations of DDT is reviewable, and that accordingly it has accepted and exercised that jurisdiction in an *interim* manner by directing the Secretary to review his earlier decisions, to make a fresh determination of whether to suspend and cancel the registrations, and to certify to the court the record upon which those decisions are based. This action by the court, however, is *interim*; the final exercise of jurisdiction will come when it reviews the record now before the court. The jurisdiction of this court is not only a threshold decision. It is an integral consideration in determining the manner in which the court should review the record now before it. Accordingly, amicus respectfully requests the court to consider the jurisdictional argument set forth *infra* in reviewing the record now before it and in determining its final action.

<sup>2</sup> The Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. §§ 135-135k (1964).

can be certified pursuant to 28 U.S.C.A. § 2112 (1970). Thus, an order based upon such a record is the *sine qua non* to the jurisdiction of this court. The order over which this court asserts appellate review jurisdiction—the refusal of the Secretary to order the suspension or the cancellation of all DDT registrations—is not an order based upon the record of formal administrative proceedings.<sup>3</sup> Thus, the decision of the Secretary not to suspend or to cancel registrations, because it is not an order based upon a record which can be certified to this court pursuant to Section 2112 of Title 28, United States Code, is not reviewable by this Court under Section 4.d. of FIFRA.

**A. THIS COURT HAS JURISDICTION UNDER FIFRA TO REVIEW ONLY AN ORDER WHICH IS BASED UPON THE RECORD OF FORMAL ADMINISTRATIVE PROCEEDINGS.**

**1. The Appellate Review Jurisdiction Over Orders of the Secretary of Agriculture Pursuant to His Authority Under FIFRA Is Conferred on This Court Solely by Section 4.d. of FIFRA.**

It is axiomatic that federal courts, including courts of appeals, derive their jurisdiction wholly by act of Con-

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<sup>3</sup> Reduced to essentials the facts upon which jurisdiction is predicated are these. EDF filed with the Secretary of Agriculture a petition to suspend or cancel all registrations of DDT. The Secretary by inaction declined to do so. Thereupon EDF filed its petition with this court alleging jurisdiction under Section 4.d. of FIFRA and asking that this court review the inaction of the Secretary and also order him to take such action.

This court held that the Secretary's inaction was tantamount to an affirmative refusal to suspend or cancel DDT registrations and in effect, therefore, an order denying petitioner's request. The court further held that EDF had standing as a party aggrieved by the order, that the Secretary's decision was a reviewable order, and sufficiently final in impact to be ripe for review. However, having decided these questions favorably to Petitioner, this court, amicus respectfully argues, erroneously assumed that under FIFRA it had statutory appellate jurisdiction. By treating Respondent's argument that the petition is only recognizable in the district court as question of appropriate forum or a matter of judicial convenience, this court overlooked the question of whether in fact FIFRA conferred jurisdiction under this court to review the Secretary's discretionary order.



gress. *See e.g., Kline v. Burke Construction Co.*, 260 U.S. 226, 234 (1922). Accordingly, the jurisdiction of this court to review the agency action in question is necessarily created and determined by statute. Those statutes which confer a general appellate review jurisdiction upon courts of appeals do not grant jurisdiction to review an order of the Secretary of Agriculture pursuant to his authority under FIFRA. *See* 28 U.S.C.A. § 1291, *et seq.* (1970). (*See also* Reviser's Notes, 28 U.S.C.A. § 1291, delineating other, specific, statutory grants of jurisdiction to the courts of appeals none of which applies to the facts at hand.)<sup>4</sup> Thus, the jurisdiction of this court to review the Secretary's order must be derived, if at all, from FIFRA. Accordingly, both the petitioners and the intervenors have herein specifically alleged the jurisdiction of this court to review the Secretary's discretionary order upon FIFRA, Section 4.d. (7 U.S.C. § 135b (d) (1964)).<sup>5, 6</sup> Likewise this court purports to ex-

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<sup>4</sup> The Administrative Procedure Act (APA), 5 U.S.C. § 701 *et seq.* (Supp. V, 1969) has been cited by this court (Slip op. at n. 16, 18, 31) and should be mentioned in the context of jurisdiction. Where no statute adequately specifies the proper procedure and court for review the APA (5 U.S.C. § 703) provides for review by

. . . any applicable form of legal action, including actions for declaratory judgments or writs of prohibitory or mandatory injunction or habeas corpus, in a court of competent jurisdiction.

The "court of competent jurisdiction" under 5 U.S.C. § 703 is the district court. *Rettinger v. F.T.C.*, 392 F.2d 454 (2d Cir. 1968) (cases cited). Therefore, the APA, were it alleged in the petition, would not confer jurisdiction on this court.

<sup>5</sup> "Petitioners seek review under 7 U.S.C. Sec. 135b(d) which is Section 4.d. of the Federal Insecticide, Fungicide and Rodenticide Act (61 Stat. 163, as amended 7 U.S.C., Sec. 135-135k, hereinafter cited as FIFRA)." Petition at 1.

<sup>6</sup> "The jurisdiction of this court rests on § 4d of Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, 7 U.S.C. § 135b(d), 51 Stat. 168, as amended by 70 Stat. 190." Brief for Intervenor (State of New York) in support of Petition for Review of Order of United States Department of Agriculture at 2.

ercise jurisdiction under Section 4.d. of FIFRA. Slip op. at 8 n. 21.

This is not to say that the courts of appeals are the exclusive forum for all judicial reviews of administrative action taken pursuant to authority of FIFRA.<sup>7</sup> For example in *Nor-am v. Hardin*, No. 18478 (7th Cir., July 15, 1970) the U.S. Court of Appeals for the Seventh Circuit held that a district court had jurisdiction to enjoin the Secretary's order under Section 4.c. of FIFRA suspending the registration of panogen. In so doing, the court said ". . . the terms of the statute [FIFRA] do not necessarily preclude initial review by the District court of administrative action claimed to be arbitrary and capricious. This is so under the inherent equity power of the District Court . . ." Slip op. at 20. Hence, in the absence of jurisdiction in this court to review a particular action taken by the Secretary of Agriculture pursuant to FIFRA, the district courts may have review jurisdiction in, for example, a mandamus action pursuant to 28 U.S.C. § 1361 (1962).

Thus it is clear that the jurisdiction of this court to entertain petitions for direct appellate review of action taken by the Secretary of Agriculture under FIFRA is granted solely by FIFRA. A determination of the limits of that jurisdiction requires a close scrutiny of the Act, specifically Section 4.d. (7 U.S.C. § 135b(d) (1964)).

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<sup>7</sup> Amicus recognizes that Section 4.d. of FIFRA provides that judicial review may be obtained by

. . . filing in the United States court of appeals for the circuit wherein such person resides or has his principal place of business, or in the United States Court of Appeals for the District of Columbia Circuit, . . .

and also provides that ". . . the court shall have exclusive jurisdiction . . ."

7 U.S.C. § 135b(d) (1964) However, this quoted language is consistent with amicus' position (see discussion *infra*) that the exclusive jurisdiction of courts of appeals extends only to the review of orders which are based upon the record of formal administrative proceedings. See e.g., *Nor-am v. Hardin*, No. 18478 (7th Cir., July 15, 1970) Slip op. at 20.

**2. Under Section 4.d. of FIFRA This Court Has Jurisdiction To Review Only Orders Which Are Based Upon the Record of a Formal Proceeding.**

Section 4.d. of FIFRA (7 U.S.C. § 135b(d) (1964)) confers jurisdiction upon this court as follows:

In a case of actual controversy as to the validity of *any order under this section*, any person who will be adversely affected by such order may obtain judicial review by filing in the United States court of appeals . . . . a petition praying that the order be set aside in whole or in part. A copy of the petition shall be forthwith transmitted by the clerk of the court, by the Secretary . . . and thereupon the *Secretary shall file in the court the record of the proceedings on which he based his order, as provided in Sec. 2112 of Title 28.* (emphasis added)

These two sentences read together, as indeed they must be, clearly indicate the particular type of order over which this court has review jurisdiction. Section 4.d. vests jurisdiction in this court to review only an order which is based upon a record of formal statutory proceedings as provided in 28 U.S.C.A. § 2112. The Secretary is required to file ("shall file") the record which formed the basis for the order. These two sentences preclude any implication that any order to be reviewed by the court would be missing this record. The record is the jurisdictional *sine qua non*.

The limitation of jurisdiction solely to review of orders based upon a record of formal administrative proceedings is consistent with the nature and function of an appeals court. Courts of appeals are equipped to weigh record evidence but not to develop a record. Furthermore, this limitation of review jurisdiction is perfectly consistent with the scope of review adopted by Section 4.d. of FIFRA.

The findings of the Secretary with respect to questions of fact shall be sustained if supported by *sub-*

*stantial evidence when considered on the record as a whole, including any report and recommendation of an advisory committee. (Emphasis added.)*

Without a prior formal hearing at which testimony is submitted to cross examination, etc., there can be no "evidence" let alone a "record as a whole" to which this court can apply the substantial evidence test.

The form of the proceedings and the type of record upon which the Section 4.d. order must be predicated is clearly set forth in 28 U.S.C.A. § 2112 (1970):

*. . . the order sought to be reviewed or enforced, the findings or report upon which it is based, and the pleadings, evidence, and proceedings before the agency, board, commission or officer concerned. . . .*

FIFRA (Section 4.c., 7 U.S.C. §135(c)(1964)) specifically provides for such a hearing and record (upon request of the applicant or registrant) after refusal of a registration application and also after notice of cancellation of a registration.

Whenever, the Secretary refuses registration of an economic poison or determines that registration of an economic poison should be cancelled, he shall notify the applicant for registration or the registrant of his action and the reasons therefor. Whenever an application for registration is refused, *the applicant, within thirty days after service of notice of such refusal, may file a petition requesting that the matter be referred to an advisory committee or file objections and request a public hearing in accordance with this section. A cancellation of registration shall be effective thirty days after service of the foregoing notice unless within such time the registrant (1) makes the necessary corrections; (2) files a petition requesting that the matter be referred to an advisory committee; or (3) files objections and requests a public hearing. (Emphasis added)*

Thus, only in these two instances (refusal or cancellation of registration) is there a hearing during which the record, prerequisite to appellate review jurisdiction in courts of appeals, can be developed. Indeed, FIFRA makes it clear that if an applicant or registrant wishes to appeal an order of the Secretary refusing or cancelling a registration, he must first request a formal hearing to develop the requisite specific record before he may petition this court.

Section 4.c. of FIFRA further describes the order in such a way as to exclude any but one based upon a formal administrative hearing and record.

As soon as practicable after completion of the hearing, but not later than 90 days, the Secretary shall evaluate the data and reports before him, act upon such objections and issue an order granting, denying, or cancelling the registration or requiring modification of the claims or the labelling. Such order shall be based only on substantial evidence of record of such hearing, including any report, recommendations, data, and reason certified to the Secretary by an advisory committee, and shall set forth detailed findings of fact upon which the order is based.

Clearly the order of the Secretary over which Congress conferred statutory appellate jurisdiction in Section 4.d. of FIFRA is that based upon a record of a formal hearing and also, if requested, an advisory committee report.

This conclusion is reinforced by the language of the Administrative Procedure Act, which is helpful for illustration. The APA (5 U.S.C. § 551) defines "order" in the following manner:

(6) "order" means the whole or any part of a final disposition whether affirmative, negative, injunctive, or declaratory in form, of any agency in a matter other than rule making but including licensing; (7) "adjudication" means agency process for the formulation of an order. . . .

"Adjudication," the agency process by which an "order" is created, is a determination based "... on the *record* after opportunity for an agency *hearing* . . ." 5 U.S.C. § 554(a) (exceptions not here pertinent; emphasis added).

The "record" on which an adjudication is based further indicates the formality and affirmative action which are required to create "reviewable orders":

(e) The transcript of testimony and exhibits, together with all papers and requests filed in the proceeding, constitutes the *exclusive record* for decision in accordance with section 557 of this title. . . . When an agency decision rests on official notice of a material fact not appearing in the evidence in the record, a party is entitled, on timely request, to an opportunity to show the contrary. (5 U.S.C. § 556(c); emphasis added)

In addition, the "hearing" at which the record is made and on which an adjudication depends is a formal type, adversary, evidentiary proceeding, overseen by a quasi-judicial presiding officer. 5 U.S.C. § 556 (a)-(c). When the hearing procedure is complete, then the "order", based on the record established at the hearing is issued and becomes part of the record:

The record shall show the ruling on each finding, conclusion, or exception presented. All decisions, including initial, recommended, or tentative decisions, are a part of the record and include a statement of— (A) findings and conclusions, and the reasons or basis therefor, on all the material issues of fact, law, or discretion presented on the record; and (B) the appropriate rule, *order*, sanction, relief, or denial thereof. (5 U.S.C. § 557(c); emphasis added)

An appeal may be taken from the "order" and the appellate court is directed statutorily as to that which it may consider:

In making the foregoing determinations [including determinations of the merit of an order] the court shall

review the whole *record* or those parts of it cited by a party, and due account shall be taken of the rule of prejudicial error. (5 U.S.C. § 706; emphasis added)

Thus, the definition of order used in the APA reinforces the already clear meaning of order as used in FIFRA Section 4.d. The order upon which the appellate review jurisdiction of this court depends is only that order based upon the record of formal administrative hearings.

**B. SINCE THE SECRETARY'S DISCRETIONARY DECISION UNDER SECTION 4.c. OF FIFRA TO SUSPEND OR CANCEL DDT REGISTRATIONS IS NOT AN ORDER BASED UPON OR REQUIRED TO BE BASED UPON THE RECORD OF FORMAL ADMINISTRATIVE PROCEEDINGS, THIS COURT IS WITHOUT APPELLATE REVIEW JURISDICTION.**

1. **Under Section 4.c. of FIFRA the Decision of Whether To Suspend or Cancel Is Discretionary and Not Required To Be Based Upon the Record of Formal Administrative Hearings.**

The summary suspension power of the Secretary is provided under Section 4.c. as follows:

Notwithstanding any other provision of this section, the Secretary *may, when he finds* that such action is necessary to prevent an imminent hazard to the public, by order, *suspend* the registration of an economic poison immediately. (emphasis added)

Similarly permissive language confers the power to cancel.

The Secretary, in accordance with the procedures specified herein, *may* suspend or cancel the registration of an economic poison *whenever it does not appear* that the article or its labeling or other material required to be submitted complies with the provisions of this Act. (emphasis added)

Unmistakeably and understandably, considering the expertise necessary to weigh the many facets of these decisions, this straight forward statutory language of Sec-



tion 4.c. commits both actions to the Secretary's discretion.<sup>8</sup>

The discretionary authority to summarily suspend registrations or to issue notices of cancellation, conferred upon the Secretary of Agriculture by Section 4.c. of FIFRA, does not require or contemplate that there be formal administrative proceedings at which a record, as provided in 28 U.S.C.A. § 2112, can be developed. See 7 U.S.C. § 135b(c) (1964). By their very nature these discretionary decisions (or if you will, orders) must be made informally and not be based upon a formal administrative proceeding at which a record is developed. Certainly Congress, in drafting FIFRA, recognized that a cumbersome formal hearing before such decisions could stymie the effective administration of the Act and, in the case of summary suspension, possibly endanger the public. Thus orders of the Secretary which suspend or cancel DDT registrations are not orders based upon the record of a formal administrative hearing.

**2. This Court Cannot Assert Jurisdiction Over This Petition on the Basis of the Record Supplied by the Secretary.**

The record before this court is not one which is required by Section 4.d. of FIFRA and 28 U.S.C.A. § 2112, namely a record which was the product of a formal and a public hearing. It does not include the testimony of interested parties and experts subjected to cross examination before a person qualified to receive evidence. Unless the prerequisite record developed during formal administrative proceedings exists in the first instance, this

<sup>8</sup> See, e.g., *Rasmussen v. United States*, 421 F.2d 776 (8th Cir. 1970) (Postmaster General's discretion to cancel mail service); *Knight Newspaper, Inc. v. United States*, 395 F.2d 353 (6th Cir. 1968) (Postmaster General's discretion to refund postage); *Ferry v. Udall*, 336 F.2d (9th Cir. 1964), cert. denied, 381 U.S. 904 (1965) (Discretion of Secretary of Interior to reject bids for public lands); *Chernock v. Gardner*, 360 F.2d 257 (3rd Cir. 1966) (Discretion of the Secretary of Health, Education and Welfare to set fees in social security cases).

court is without jurisdiction or authority to order that the Secretary develop a record. Certainly the court cannot boot-strap itself into jurisdiction by requiring that the Secretary develop a record, especially where none is required by statute prior to the Secretary's issuing his discretionary order. Indeed, even this record, submitted by the Secretary in compliance with the court's order, is manifestly not the record contemplated by Section 4.d. and 28 U.S.C.A. § 2112. Thus, if the question of jurisdiction were determined anew at this point, the court would not even now have jurisdiction over this action.

**C. THIS COURT DOES NOT HAVE JURISDICTION TO REVIEW THE DECISION OF THE SECRETARY NOT TO CANCEL OR SUSPEND DDT REGISTRATIONS, NOTWITHSTANDING THE RECORD PROVIDED BY THE SECRETARY.**

From the foregoing it must follow that decisions to (or not to) cancel or suspend, not being orders based upon the record of formal administrative hearings, are not orders over which this court has review jurisdiction.

The lack of jurisdiction in the courts of appeals to review such action is hardly surprising. Conversely, the vesting by Congress of jurisdiction of this court to conduct such a review would be quite startling. If "any order" (Section 4.d. FIFRA) is construed to mean an order informally issued, this court has exclusive jurisdiction to conduct such a review. See 7 U.S.C. § 135b(d) (1964), also n. 7, *supra*. In that event, courts of appeals (as the only available tribunal) would be required to review each and every complaint arising from an informal discretionary order.

Thus, any petitioner could insure immediate appellate review in this court by merely presenting the Secretary with a petition which, on its surface would appear to a layman to be indicia of a condition of hazard to the public. (The judge, who is without specific expertise in these matters, may well be included among the laymen.) Any

action (including even inaction under the court's earlier holding in this proceeding) on the part of the Secretary would then be automatically reviewable in the courts of appeals. Indeed, review would be necessary in each case since the court would be required to determine the possible merits of the petitioner's allegations. This merits determination on the part of the court of appeals would have to be made even in the absence of the record of formal hearings and even if the petition would have appeared frivolous at the outset, because of his expertise and experience, to the Secretary. Thus, in all cases, except where frivolity is obvious on the face of the petition, the court of appeals would necessarily be arbiter of whether a redressable charge has been made.

Furthermore, unless review of an informal discretionary order is treated (in fact) as an extraordinary remedy available only in the district court, petitions such as that *sub judice must be heard* by this court to determine its merit. Such a course usurps from the Secretary his ability to determine, based upon his expertise and judgment (which requires competence in various disciplines including pharmacology, entomology, chemistry, ecology and plant pathology to properly balance the conflicting consideration of utility and harm which affect his judgment), the merits of the petition.

Two direct and unfortunate results flow from this usurpation: (1) Hearings and the full panoply of administrative review must be undertaken at the behest of any party which, in the eyes of the courts of appeals, has presented a colorable complaint, thereby enormously and unnecessarily increasing the administrative burden on the Secretary of Agriculture in his regulation of economic poisons; and (2) it places in the courts of appeals those decisions as to whether an "imminent hazard" exists which duties were logically and reasonably given to the Secretary of Agriculture by Congress. The courts of appeals, of

course, have neither the Congressional mandate to perform the continuous function of regulating economic poisons nor are they subject to the same review of their determinations. Thus, to the extent that this court second-guesses the Secretary of Agriculture's discretionary refusal to respond to petitioner's complaint, it creates a clearly undesirable and unnecessary burden on the regulatory machinery required to implement FIFRA.

Congress would not have given courts of appeals exclusive jurisdiction to review "any order" (where order would include decisions informally reached without a hearing record) when the results would be so obviously disastrous. Thus, while the first sentence of 4.d. ("In the case of actual controversy as to the validity of any order under this section . . .") viewed out of context could conceivably be stretched to include every decision made by the Secretary under FIFRA, Congress certainly never intended that this court be burdened with review of "any order" issued by the Secretary. Moreover, it is clear (from discussion, *supra*) that the word "order" as it is used in the context of Section 4, can only mean an order based upon a record of formal administrative hearings. It would require a strained and myopic reading of Section 4, violative of every canon of statutory construction,<sup>9</sup> to conclude that a discretionary decision not based upon a record is appealable to this court.

The absence of a formal record in issuing a discretionary order is precisely why Congress did not grant this court jurisdiction to review the decision by the Secretary. Proper judicial review of such an order (if it is reviewable at all)

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<sup>9</sup> Statutes must be construed so as to give effect to all of their provisions. *Jarecki v. G.D. Searle & Co.*, 367 U.S. 303, 307-308 (1961) (the court refused to accept a "strained reading" where a reasonable construction gave effect to all of the statute's provisions); *Ex parte The Public Nat'l Bank of New York*, 278 U.S. 101, 104 (1928) ("no rule of statutory construction has been more definitively stated or more often repeated than the cardinal rule that 'significance and effect shall, if possible, be accorded to every word \* \* \*.' *Market Co. v. Hoffman*, 101 U.S. 112, 115'").

must be based upon a record of *formal hearings*. The only judicial tribunal capable of effectively granting the relief, if indeed relief is warranted, sought by petitioner is the district court. This petition is clearly in the nature of a mandamus to compel positive action, the ordering of which necessitates a formal hearing before the court in order to familiarize the court with the whole body of knowledge necessary to evaluate the many competing interests which must be protected in ordering such action and also, to adequately test the basis for the various allegations. FIFRA does not confer this Court with jurisdiction to undertake such a review.

This court has discussed the mandamus nature of this petition in the context of an appropriate forum for review rather than the more basic concern of jurisdiction to undertake review.

.... We find it unnecessary to decide whether petitioners could have obtained relief from the district court, since the availability of that extraordinary remedy for the failure of an officer to perform his statutory duty need not bar statutory appellate review of the failure to act, when exigent circumstances render it equivalent to a final denial of petitioner's request. . . . (Slip op. at 9)<sup>10</sup>

This quotation assumes the statutory jurisdiction in this court to conduct appellate review. This assumed jurisdiction is mistakenly equated with the ripeness and reviewability of the order, and the ability of this court to grant the appropriate relief. This court, of necessity, must first

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<sup>10</sup> Two sources are cited as authority for the proposition:

JAFFE, *Judicial Control of Administrative Action* (1965), note 19 at 358-59; and, Byse and Fiocca, *Section 1351 of the Mandamus and Venue Act of 1962 and "Nonstatutory" Judicial Review of Federal Administrative Action*, 81 HARV. L. REV. 308, 335-36 (1967).

While those authorities may be used as supporting the proposition for which the court applies them, both authorities presume as the starting point of discussion the jurisdiction of the courts of appeals to undertake this review.

possess the jurisdiction to act. However, because the enabling statute conditions the exercise of jurisdiction upon the existence of an order based upon the record of a formal hearing, this court is without jurisdiction to consider in this case the "appropriate forum" issue.

This court's determinations of standing, ripeness and reviewability aside, the threshold and fundamental question of jurisdiction must be faced. Amicus' reading of FIFRA discloses the jurisdictional prerequisite for the courts of appeals undertaking review of agency action is the existence of an order based upon the record of a formal administrative hearing. In this case there were no hearings and thus no record of such hearings can exist. Accordingly, this court, as it is without the requisite record, lacks jurisdiction to proceed further on this appeal.

**II. IF THE COURT REAFFIRMS ITS JURISDICTION, ITS STANDARD FOR REVIEW SHOULD BE LIMITED TO A DETERMINATION OF WHETHER THERE WAS A RATIONAL BASIS FOR THE SECRETARY'S FAILURE TO RESPOND TO PETITIONER'S COMPLAINT.**

**A. BECAUSE OF THE LIMITED NATURE OF THE "RECORD" BEFORE THE COURT, A "SUBSTANTIAL EVIDENCE" TEST OF THAT RECORD IS IMPROPER.**

The record before the Court was not the result of a formal administrative proceeding. There were no witnesses; there was no right of cross-examination. The record consists entirely of written views expressed through reports, letters, newspaper clippings, et cetera. It furnishes no basis on which the qualifications of the individuals, who express the opinions reflected, can be appraised. A decision either to suspend or cancel the registration of a pesticide reflects the interest of numerous parties—not only the registrant but the various persons using the pesticide, the persons who ship food commodities to which the pesticide is applied, the consumer who is interested in obtaining a wholesome food supply, distributors of the pesticide,



et cetera. None of these parties has had an opportunity to present his views in the record now before the court.

The test of the propriety of the decision of an administrative official is properly whether his decision is based on "substantial evidence" only when the record to which the inquiry is directed is made pursuant to a formal administrative proceeding. 5 U.S.C. §§ 556, 557 (Supp. V., 1969). Such as it is, the "record" now before the court clearly does not meet the requirements of those sections. Since the record before the court does not suggest the test for the review to be afforded the Secretary's act, the court should look to the nature of the act itself as providing review criteria.

If this court reaffirms jurisdiction, further confusion will also result from the FIFRA requirement that the Secretary's "*findings of fact shall be sustained if supported by substantial evidence when considered on the record as a whole*, including any report and recommendation of an advisory committee." FIFRA Sec. 4.d. (emphasis added). Where, as here, there is no advisory committee recommendation, the court's determination would be limited under Section 4.d. (and appropriately so since courts of appeals are not evidence-gathering tribunals) to an appraisal of the "record" filed by the Secretary. If a compilation of miscellaneous and voluminous materials submitted by the Secretary is held to have the status of a "record", it is difficult to imagine the situation in which the "record", created as it is, solely by the Secretary, would not support his position on either "abuse of discretion" or "substantial evidence" criteria.



**B. THE NATURE OF THE SECRETARY'S ACT ABOUT WHICH THE PETITIONER COMPLAINS IS ONE BASED ON THE SECRETARY'S DISCRETION, THEREFORE REQUIRING THAT THE TEST OF ITS PROPRIETY BE WHETHER A RATIONAL BASIS EXISTS FOR THE SECRETARY'S EXERCISE OF THAT DISCRETION.**

The act of which petitioner complains—refusal to act upon its petition—if an “act” at all, is one which does not have as a prerequisite a rule-making, adjudicatory, or other type of formal hearing. Where no hearing is required, the proper standard of review is whether the administrative official's act is “arbitrary, capricious, an abuse of discretion or otherwise not in accordance with law . . .” 5 U.S.C. § 706 (2)(A) [Administrative Procedure Act, § 10(e)]; See also, *Environmental Defense Fund v. Hardin*, No. 23,813 (D.C. Cir., May 28, 1970) Slip op. at 11 and n. 31.

The scope of this test may be framed in varying language, a fair crystallization of which is to require a standard less than that implied by the substantial evidence tests in those cases in which no record based upon a hearing is before the court.<sup>11</sup> See e.g., *Bates & Guild Co. v. Payne*, 194 U.S. 106, 108-9 (1904) (an administrator's acts are presumptively valid “unless he has exceeded his authority or this court should be of the opinion that his action was clearly wrong” (cited with approval in *United States v. Shimer*, 367 U.S. 374, 381-82 (1960).)<sup>12</sup> As a consequence, the criteria used by this court should be whether the act of the Secretary is “clearly wrong” or, conversely, whether

<sup>11</sup> If a discretionary administrative act is formally reviewed in a hearing at which a proper record is created, a reviewing court might well consider that record. See *Consolo v. Federal Maritime Comm'n*, 383 U.S. 607 (1965) (The administrator's decision was supported by substantial evidence in the record). The case does not provide guidance for the situation where no formal hearing is held, nor where the act about which the complaint is made is a passive one.

<sup>12</sup> See also, *National Broadcasting Co. v. United States*, 319 U.S. 190 (1943); *Labor Board v. Hearst Publications, Inc.*, 322 U.S. 111 (1944); *Republic Aviation Corp. v. Labor Board*, 324 U.S. 793 (1945); *SEC v. Chenery Corp.*, 332 U.S. 194 (1947); and *Labor Board v. Seven-Up Bottling Co.*, 344 U.S. 344 (1953).

there is a "rational basis" on which that decision was made.

[T]he judicial function is exhausted when there is found a rational basis for the conclusion approved by the administrative body. *Rochester Tel. Corp. v. U. S.*, 307 U.S. 125, 146 (1938) quoting from *Mississippi Valley Barge Line Co. v. United States*, 292 U.S. 282, 286-87 (1934).

Furthermore, because of the high degree of expertise necessary to properly make the discretionary decisions herein challenged as wrong by petitioner, this court should place a premium on that expertise. *Consolo v. F.M.C.*, 383 U.S. 607 (1965).

### III. THE SECRETARY IS NOT REQUIRED TO ISSUE A CANCELLATION NOTICE AS AN ESSENTIAL STEP IN EXERCISING HIS DISCRETION TO DETERMINE WHETHER CANCELLATION IS NECESSARY.

Petitioners and Intervenor State of New York request this Court to order the Secretary of Agriculture to issue cancellation notices for all remaining registrations of DDT and thereby bring about the statutory review procedure. Petitioners take the position that the consideration currently being given by the Secretary as to which, if any, uses should be cancelled is extra-statutory and illegal. (Brief for Petitioners at 35-44; Brief for Intervenor State of New York at 14-29.)

The pertinent provisions of FIFRA are these:

The Secretary, in accordance with the procedures specific herein, may suspend or *cancel* the registration of an economic poison whenever it does not appear that the article or its labeling or other material required to be submitted complies with provisions of this Act. Whenever, the Secretary . . . *determines* that registration of an economic poison should be canceled, he shall notify the applicant for registration or the registrant of his action *and the reasons therefor*.

... A cancellation of registration shall be effective 30 days after service of the foregoing notice unless within such time the registrant

- (1) makes the necessary corrections;
- (2) files a petition requesting that the matter be referred to an advisory committee or
- (3) files objections and requests a public hearing.

[Section 4.d. Emphasis added]

There then follows in this same section a detailed description of the formal review procedure. The section concludes with the statement:

Final orders of the Secretary under this section shall be subject to judicial review, in accordance with the provisions of subsection d.

The position of petitioners as stated on pages 43 and 44 of their brief may be summarized:

DDT is persistent; DDT has accumulated in most forms of life including man; DDT is carcinogenic in test animals; DDT is causing the decline of certain species; and DDT causes death to non-target fish and birds. Any DDT product, therefore, is inherently misbranded and cancellation notices must be issued.

This reflects a simplistic, "per se", "no discretion" approach to the enforcement of FIFRA. The administration and enforcement of this statute cannot be considered on such a simplistic basis. By the very nature of the subject regulated, the administrator must apply a high degree of expertise and discretion in resolving the conflicting realms of interest. The Report of the Committee on Government Operations of the United States Senate made by its Subcommittee on Reorganization and Internal Organizations, under the Chairmanship of Senator Abraham Ribicoff, after an exhaustive investigation into the enforcement of

FIFRA described this process as a balancing of the "benefit-risk" equation:<sup>13</sup>

Chemical pesticides kill pests because they are toxic, and because they are toxic some are also capable, in excessive dosages, of causing illness, even death, in people and wildlife.

But just as it would be illogical to prohibit the use of chemical pesticides in an attempt to increase farm prices or as a means of controlling the population explosion, no one proposed that pesticides be banned so as to assure that not a *single* individual is made ill nor *any* wildlife affected because of an excessive exposure to a toxic chemical. [Emphasis in original]

\* \* \* \*

The concept of the benefit-risk equation has a compelling logic which all accept in principle. [At 63-64]

In its report the Committee concluded:

Second, the committee found no reliable evidence to suggest that the benefit-risk equation was *presently* unbalanced in any *significant* way. [At 65, Emphasis in original]

The decision of whether to cancel all or any of the remaining registrations of DDT is an exercise in discretion, embodying the very essence of this "benefit-risk" concept.

FIFRA, section 4.c. authorizes, but does not direct, the Secretary to cancel a registration if and when he finds that it does not comply with FIFRA. It does not tell him how he shall arrive at this discretionary decision. It does, however, tell him that before he arrives at the decision to cancel, he shall first have determined the reasons for doing so, and also have notified the registrant of these reasons.

<sup>13</sup> Subcommittee on Reorganization and Internal Organizations of the Senate Committee on Government Operations, S. Rep. No. 1379, 89th Cong., 2d Sess. (1966). This investigation was conducted pursuant to Senate Resolution 27, 88th Cong., as amended; extended by Senate Resolution 288, 88th Cong., under which the Subcommittee undertook extensive hearings and studies of inter-agency coordination of activities relating to the use of pesticides.

It is at this point, *and at this point only*, that there comes into play the formal review proceedings which petitioners ask this court to order the Secretary to initiate. However, for the reasons previously discussed, this court does not have threshold jurisdiction to review a decision not to cancel because it is not a decision which, under FIFRA, was required to be based upon a record.

Petitioners by implication recognize that FIFRA does not give to them standing to petition and compel the cancellation of a registration and thereby initiate formal proceedings. They do so by implication when they argue that because this court ordered comparable action in *Environmental Defense Fund, Inc., et al. v. United States Department of Health, Education and Welfare*,<sup>14</sup> it should take similar action in this case.<sup>15</sup>

This argument of petitioners overlooks an essential distinction. Petitioners, as an "interested person", are specifically given the right to institute a proceeding to establish or cancel a regulation under the Federal Food, Drug and Cosmetic Act (21 U.S.C. § 301-392 (1964)). The statute provides:

(e) The Secretary may at any time, upon his own initiative or *upon the request of any interested person*, propose the issuance of a regulation establishing a tolerance for a pesticide chemical or exempting it from the necessity of a tolerance. (21 U.S.C., § 346a(e); Emphasis added.)

Interested persons are not given a comparable right under FIFRA to petition for and enforce either informal action by the Secretary to suspend or cancel a registration, or to institute the formal review procedure following such a decision.

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<sup>14</sup> *Environmental Defense Fund, Inc. et al. v. United States Department of Health, Education and Welfare*, Robert H. Finch, Secretary, No. 23812 (D.C. Cir. May 28, 1970).

<sup>15</sup> Brief for Petitioners at 41-42.

There is a valid policy reason upon which this distinction may be based. The right accorded an interested person under the Federal Food, Drug and Cosmetic Act is to petition to request a proceeding in which interested persons may present their views in writing. The proceeding which petitioners would trigger under FIFRA is a more formal, time consuming and expensive one which entails the appointment of an advisory committee and the holding of public hearings.

Petitioners and intervenor State of New York argue that the refusal of the Secretary of Agriculture to institute formal review proceedings is based on a misapprehension of the burden of proof. This argument will not bear analysis. The burden of proof is upon the registrant to establish the safety of the product at any time during the life of that product. However, the burden of proof, by its very nature, must be read as an integral part of the statutory procedures specified in FIFRA. The burden of proof is on an applicant when it submits its application for registration. The applicant must sustain this burden either in informal proceedings to persuade the Secretary of the safety of its product, or in a formal proceeding to review the refusal of the Secretary to register.

If, after initial registration, a question arises as to the continuing safety of the product, the burden of proof again is upon the registrant. At this stage, however, the burden is carried in whatever informal actions the Secretary deems expedient to use in arriving at an informal judgment on whether to cancel. He may utilize conferences, correspondence or investigations. He may invite public comment. If the Secretary, after arriving at an informed judgment, should determine to cancel the registration, the registrant must make the decision of whether he wishes to request a formal administrative review proceeding. If he does make this request, he must then carry the burden of proof in such a proceeding.



Accordingly, amicus urges the court to accept the position—

(1) That the petitioners do not have the statutory right to compel the Secretary to cancel a registration and to thereby institute formal review proceedings, and

(2) That this court does not have jurisdiction to review a decision of the Secretary not to do so.

### CONCLUSION

The grievances of petitioners and Intervenor State of New York reflect a basic disagreement with the manner in which FIFRA has been administered, a disagreement revolving primarily around the manner in which the "benefit-risk" equation has been resolved. The petitioners, however, have selected the wrong forum in which to assert and ask redress of those grievances. Their petition should have been directed to the President to change the administration of FIFRA,<sup>16</sup> or to Congress to amend FIFRA.

However, bad administration, if such it has been, should not be permitted to make bad law; bad law may make worse administration. The ramifications of the action of the court in this case, if it reaffirms its assertion of jurisdiction, are apparent. The court would have established the right of any interested person to petition the Secretary of Agriculture to suspend or cancel a registration, or to register a new one, by filing a petition alleging "reasonable" grounds for such action. How would the "reasonableness" of such grounds be judged? By the Secretary

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<sup>16</sup> The court should take judicial notice of Reorganization Plan No. 3 of 1970 which was sent by the President to Congress on July 9, 1970. This Reorganization Plan transfers all basic authority for the regulation of pesticides to a new Environmental Protection Agency. All regulatory authority of the Department of Agriculture under FIFRA as well as the authority to establish tolerances under the Federal Food, Drug and Cosmetic Act are among the powers transferred to this new agency.



in the first instance. But he would be on the horns of a dilemma regardless of how frivolous the grounds might seem to him. He would have two alternatives:

1. To take the action requested, i.e., to suspend, cancel, or issue the registration, or
2. To refuse to do so.

Either alternative automatically triggers further proceedings, either administrative or judicial. If he cancels a registration, he triggers a formal review proceeding involving the appointment of an advisory committee and a public hearing. If he denies the petition, the petitioner comes to this court for relief. At that point this court has only the alternative of judging the merits of the petition solely on the basis of allegations made by the petitioner, untested in any respect, or to remand the matter to the Secretary of Agriculture with directions that he make a record for review by this court.

The diverse forms in which such petitions could arise are numerous. There are numerous "realms of interest" in the enforcement of FIFRA. If these rights are accorded to the one who asserts an interest as a conservationist, it must accord the same right to any other interest, whether it be a farmer who has been denied the right to use a pesticide which he considers to be essential, the public health official who considers the use of a particular pesticide to be essential, or the general consumer whose interest has been affected.

Congress in its judgment has not accorded to interested parties the right to compel administrative or judicial action (except in certain prescribed instances) nor has it conferred on this court the right to do so. Neither the administrative agencies nor this court is equipped to handle such procedures.

Accordingly, amicus respectfully requests this Court upon reconsideration to dismiss the petition in this proceeding.

Respectfully submitted,

JOHN D. CONNER

CHARLES A. O'CONNOR, III

BUEL WHITE

SELLERS, CONNER & CUNEO

1625 K Street, N. W.

Washington, D. C. 20006

*Counsel for National Agri-  
cultural Chemicals Associa-  
tion*